

*Patent Tracker*

# Green Buildings

**SciTech Patent Art**

**Hyderabad**

**India**

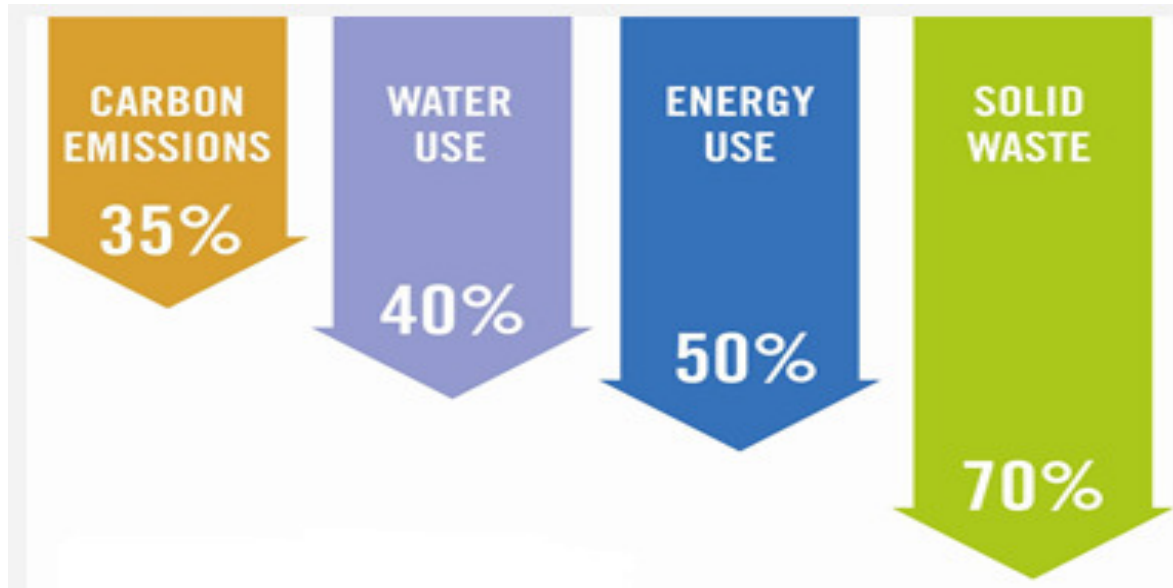


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# Savings due to Green Building

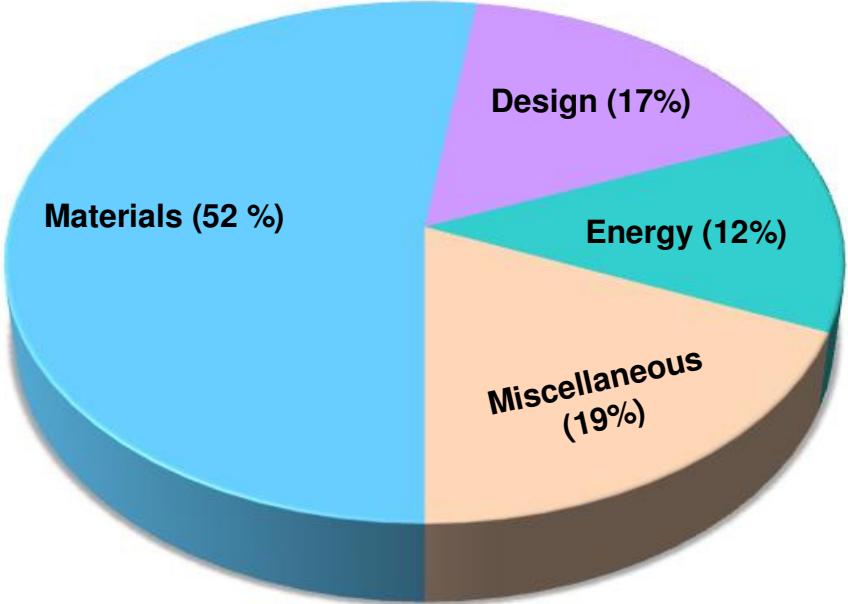
Figure 1



The saving potential is indicated to be maximum in case of handling solid waste followed by energy and water use

# Green Buildings –Patenting activity in Main Segments

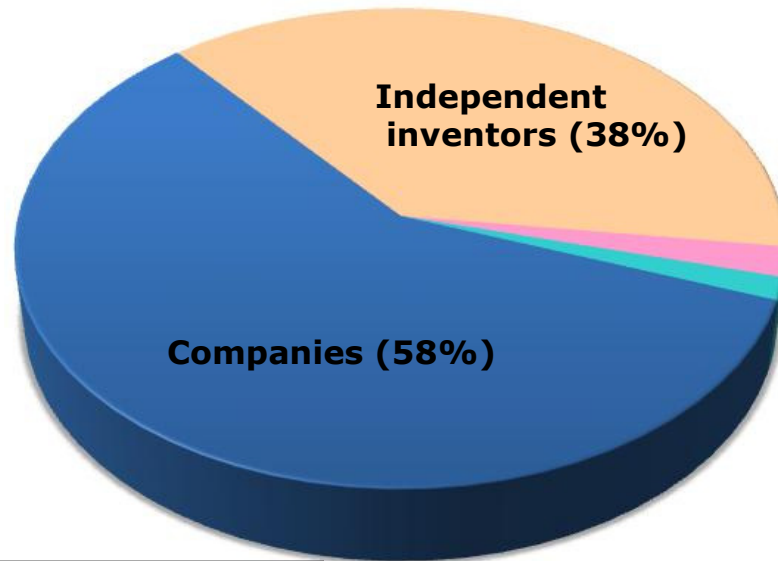
Figure 2



Amongst the segments listed, 50% of the patenting activity reflecting the nature of research and development is around materials and the remaining three segments constitute 50%.

# Patenting activity by groups

Figure 3



### MAJOR PLAYERS

JAMES HARDIE RESEARCH PTY LIMITED

BASF AK

ENGLISH CLAYS LOVERING POCHIN

GENERAL ELECTRIC CO

CORNING INC

### Collaborations

PMF, KK | NIPPON DENKI KAGAKU CO LTD

SHIGA PREF GOV | SANKI GOMME, KK

BIRDAIR, INC. | GEIGER GOSSEN HAMILTON CAMPBELL  
ENGINEERS PC | CABOT CORPORATION

ETERNIT AKTIENGESELLSCHAFT | REDCO NV

### Collaborations (2%)

### Universities (2%)

### Universities

UNIVERSITY OF MINNESOTA

UNIVERSITY OF LEEDS

TONGJI UNIVERSITY

Approximately 60% of the patenting activity is carried out by companies followed by significant work by Independent inventors

# Bibliographic information

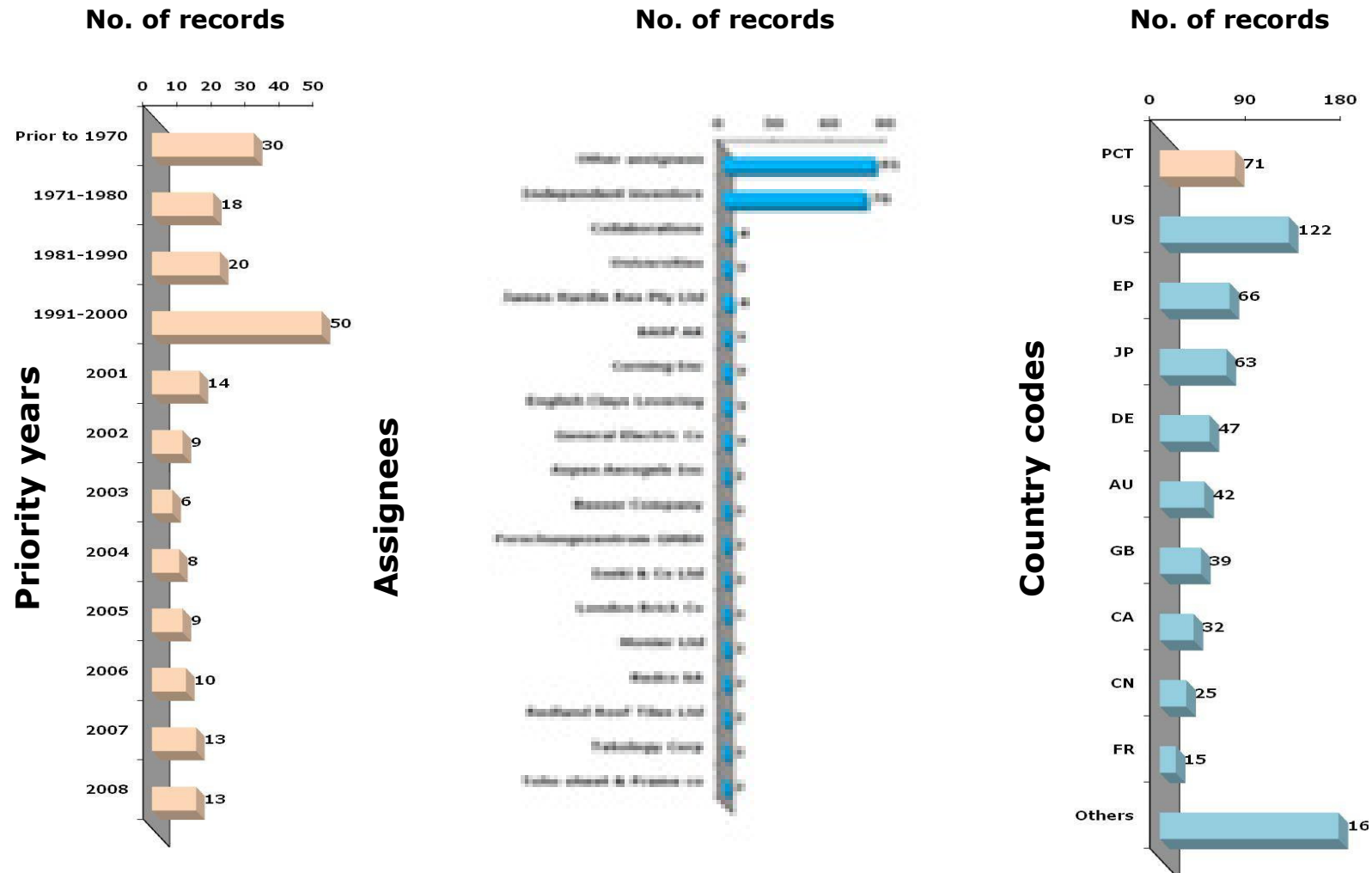
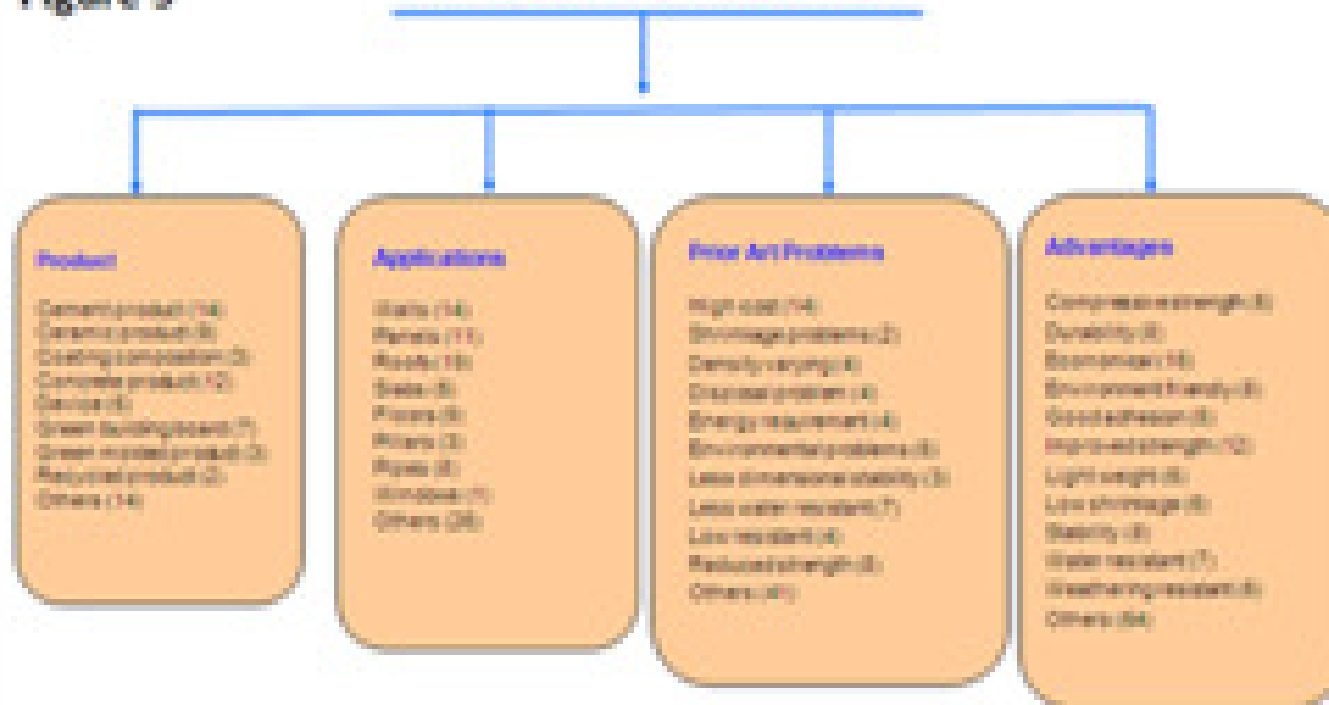


Figure 4

## Broad distribution of technology

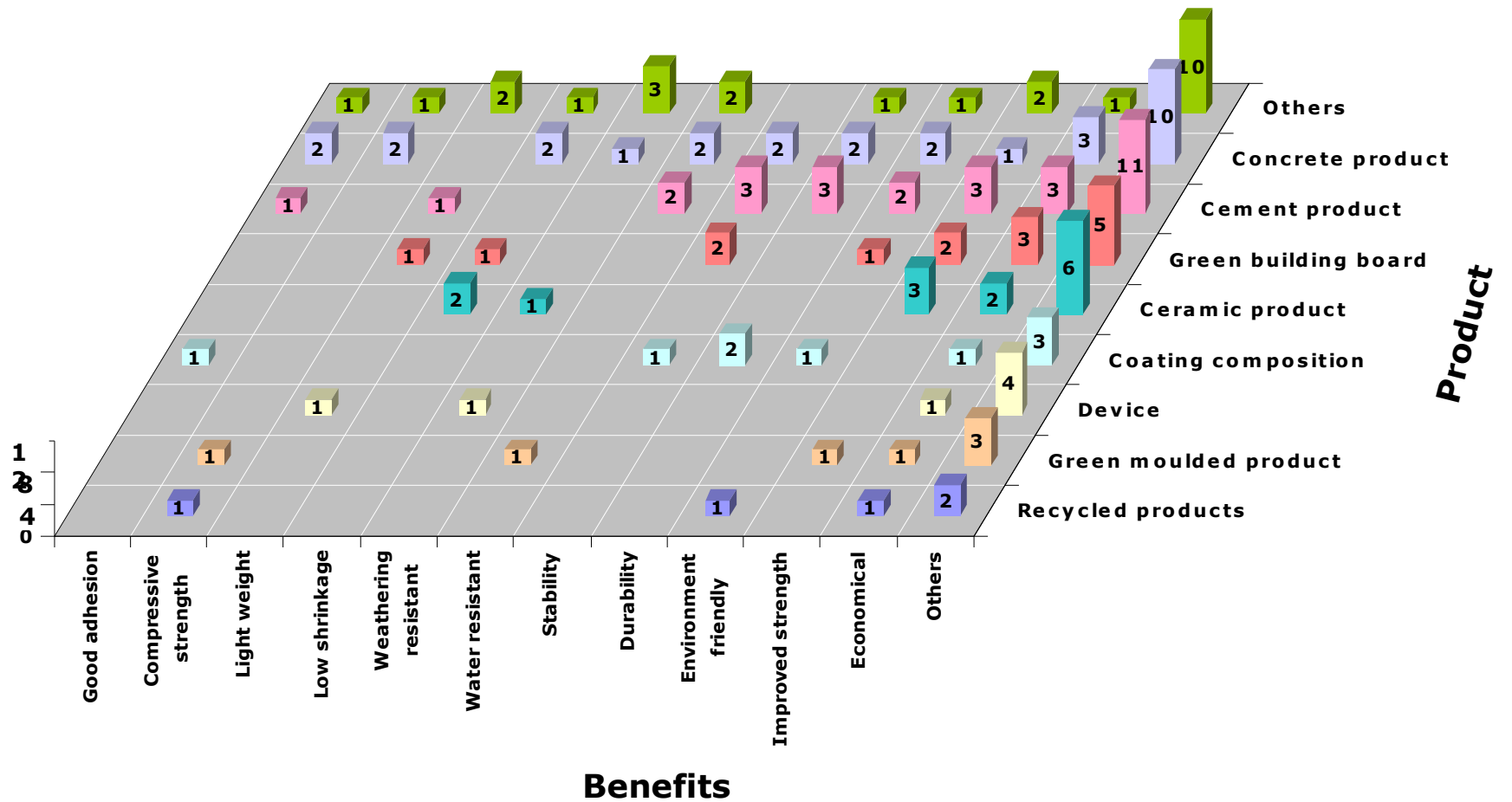
Figure 5

### Findings from Patent Analysis



# Product vs Benefits

Figure 6



# Focus of the Groups working on Green Building Materials

Figure 7

Focus of the Patents	Assignée
Water resistant fibre-cement , Low density cementious products etc.	James Hardie Res Pty Ltd
Mineral moldings with film-forming aqueous formulations	BASF AK
Alumina honeycomb monolithic supports; ceramic products	Corning Inc
Artificial road stone, Ceramic sanitary ware or earthen ware; Structural elements	English Clays Lovering
Ceramic articles	General Electric Co

Focus of the patents	Collaborations
Ceramic green products	PMF, KK   NIPPON DENKI KAGAKU CO LTD
Ceramic filters	SHIGA PREF GOV   SANKI GOMME, KK
Thermal insulation & light transmission	BIRDAIR, INC.   GEIGER GOSSEN HAMILTON CAMPBELL ENGINEERS PC   CABOT CORPORATION
Decorative wall panels, fiber-cement reinforced boards	ETERNIT AKTIENGESELLSCHAFT   REDCO NV

Focus of the patents	Universities
Pre-cast high pressure steam cured masonry articles	UNIVERSITY OF MINNESOTA
Vegetable oil based construction materials	UNIVERSITY OF LEEDS
Construction coating materials	TONGJI UNIVERSITY

## Citation velocity of highly cited patents

**Figure 8**

Patent #	Title	Focus	Year Issued	Cited by	Self cited	Cited by other Assignees	Avg Cites by Year
<a href="#">US6282445</a>	Building products	low density building products - high strength, low surface water permeability	2002	20	6	James Hardie International Finance BV (3) BDO Holding Corporation (2) Certain Teed Corporation (2)	2.8
<a href="#">US6282421</a>	Method for producing synthetic bone substitutes with controlled porosity	synthetic ceramics - macro-porous	2001	14	3	Olympus Corporation (3) Bayer Corporation (2) Biometric Therapeutics, Inc. (1)	1.9
<a href="#">US6282414</a>	High density reinforced ceramic bodies and method of making same	iron-fred articles - short heating & cooling regime	1998	41	0	Kanamaru, Inc. (10) Sandoz Aesopig (4) NGK Spark Plug Co. Ltd. (3)	1.8
<a href="#">US6282401</a>	Method for producing concrete products	green cast product - structural integrity, curing in free standing condition, enhances high volume, low cost manufacture	1992	20	0	E. Koshopp, Industries (2) The Tensar Corporation (2) Tatcon, Roger L (2) Anchor Wall Systems, Inc. (1)	1.2
<a href="#">US6282393</a>	Anti-fogging film made of a transparent synthetic resin	anti fogging film - excellent durability, good light transmittance, preventing diseases of the cultured plants	1994	16	0	3M Innovative Properties Company (3) Acroris Acetate Chemicals Limited (2) AT Plastics, Inc. (1)	1.1
<a href="#">US6282387</a>	Composite roofing panel	composite panel - preventing weathering, flame retardant, fungicide	2002	7	0	Crane Plastics Company LLC (3) E & W Greenland Group (1)	1
<a href="#">US6282383</a>	Glass fiber reinforced cement and process for manufacture of same	reinforced cementitious products - good strength, accurate dimension	1991	28	0	Weyershaeuser Company (24) Haldor Topsoe Energy Services, Inc. (2)	0.9
<a href="#">US6282367</a>	Method of making paving block	paving blocks - high strength	1973	28	0	Anchor Wall Systems, Inc. (17) Alan Block Corporation (1) Block Systems, Inc. (1)	0.9
<a href="#">US6282350</a>	Process for manufacturing brick moldings	brickwork moldings - reduce dumping problems, utilize brown coal ash	1997	6	0	Consolidated Minerals, Inc. (2) Lorraine Limited (2) Crystal Clay Corporation (1)	0.8
<a href="#">US6282342</a>	Low density accelerant and strength enhancing additive for cementitious products and methods of using same	cementitious formulations - low density calcium silicate hydrate	2002	8	0	Saint Gobain Matériau De Construction SAS (3) Solomon Coors, Inc. (1)	0.8

# Commercial Products

## Door coatings



**Insulating materials that reduce costs and save energy: -**

Foam products made of the silver-gray thermal insulating material

**Neopor® (EPS)**

•high thermal insulating potential

- energy & cost saving
- reduces heat loss and lowers CO2 emissions

## Cable Sheathing



## Elastofoam - Flexible integral systems

It is a combination of lightweight, flexible foam core, compact & tough skin:

- decorative surface finish - pleasant to the touch
- high abrasion resistance
- resistant to mechanical stress and chemicals
- elasticity even after continuous stress
- low thermal conductivity

## Water resistant products

Figure 9

**HardiePanel® siding: -**

- Long-lasting performance
- Used as a shear panel because of its structural strength
- Looks like board-and-batten look with combined with HardieTrim® planks
- Provides an excellent surface for paints and also resisting fungus and mildew
- HardiePanel vertical siding comes with a 50-year transferable limited warranty
- It is durable, low-maintenance, non-combustible fiber-cement siding



## Clay Concrete Tiles



## EAVE FILLER COMB

•Simple item that allows the air to enter between the tiles & the structure of roof.

• Prevents animals (birds, bats, squirrels, rates, etc) from nesting below these roof tiles.

**Material** : flexible PVC, black color,  
**Length** : 1m

## VENTILATION TILES

•Alternative to eave filler combs is **ventilation tiles** at the bottom of the roof for air circulation.

• Can be placed on **top of the roof slope** (at 2nd row from the ridge line).

• Facilitates **hot air evacuation** from the top of the roof, for better comfort.

## COLOROOF

- 
- Produced in Calicut (Kerala), with clay tiles.
- It offers high-performance in terms of weather resistance & comfort, maintaining a traditional look.
- Fungi & moss formation resistant
- Long lasting finish

## Recently published articles (non-Patent)

### Figure 10

1. Chi P. Hoang et al., Resistance of green building materials to fungal growth. *International Biodeterioration & Biodegradation*, Volume 64, Issue 2, March 2010, Pages 104-113.
2. David Gottfried et al., Perspectives on green building. *Renewable Energy Focus*, Volume 10, Issue 6, November-December 2009, Pages 38-41.
3. X.Q. Zhai et al., Design and performance of the solar-powered floor heating system in a green building . *Renewable Energy*, Volume 34, Issue 7, July 2009, Pages 1700-1708.
4. *List continues.....*

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