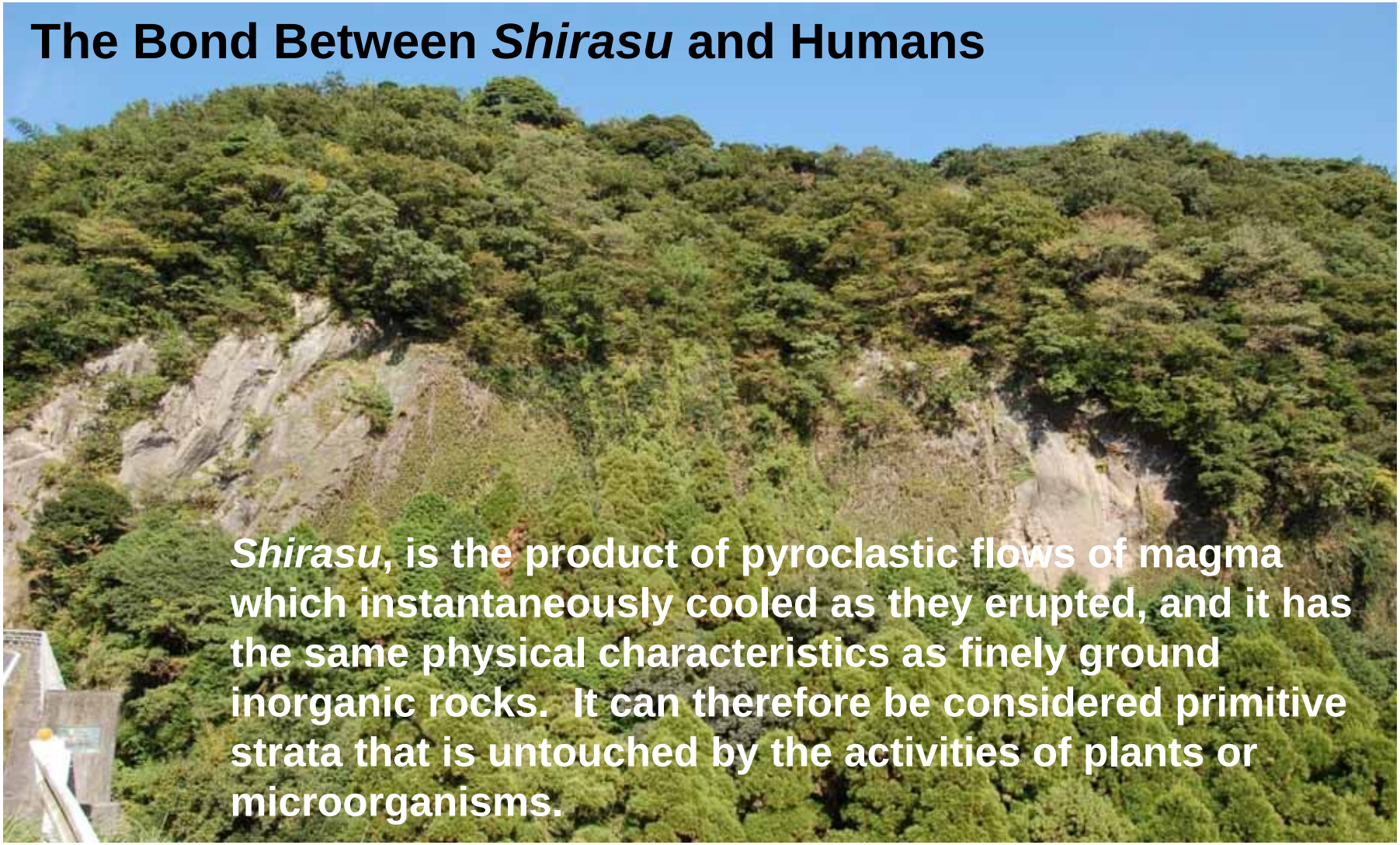
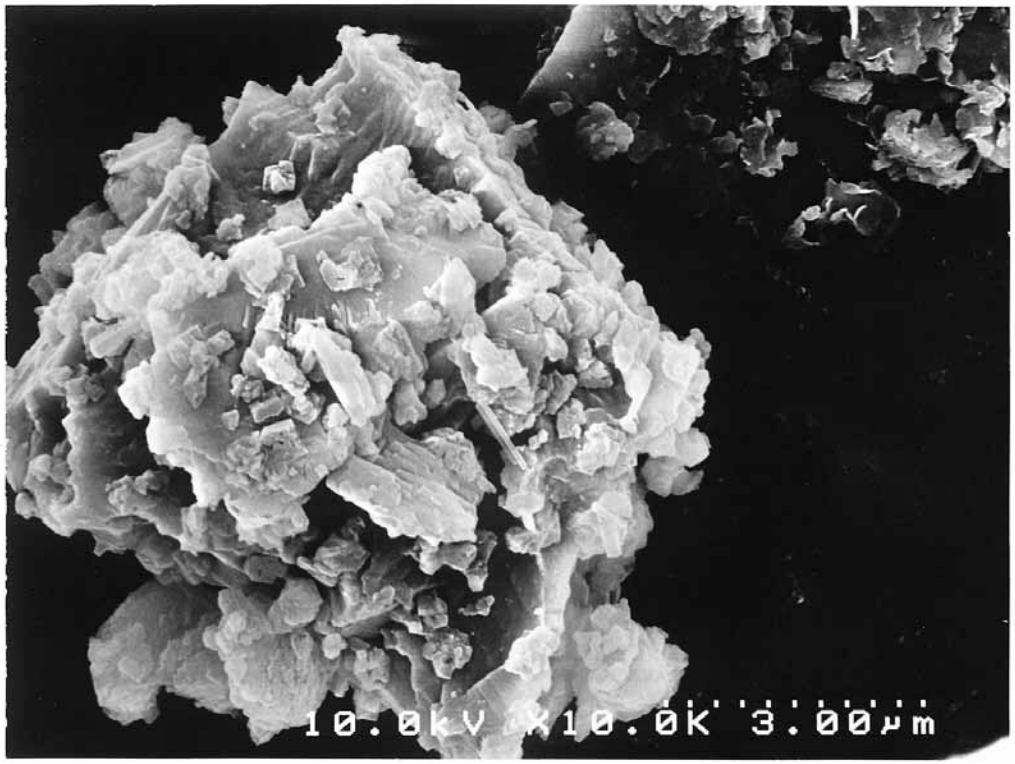
自然の力・シラスワールド
高千穂シラス

Takachiho shirasu corporation
Shirasu walls a description

MAGMA closely connected with human beings



What is Shirasu ?



Shirasu is a unique magma ceramic material.

An electron micrograph of a *shirasu* grain.

※The total surface area of *shirasu* per 1 gram

Approx. 9㎡

(It is approximately two times larger than the diatomaceous earth which burnt.)

Shirasu **is a natural inorganic ceramic material created by magma, which we refer to as a "magma ceramic".** ***Shirasu*** **is also known as "amorphous volcanic glass", which forms 60% to 80% of** ***Shirasu*** **and gives the plaster unique properties which distinguish it from other volcanic products.**

Being highly amorphous, its molecular composition is unstable and easily activated, and it can cause a catalytic reaction depending on the environment. Therefore, it has inherent properties such as deodorization, sterilization, and ionization.

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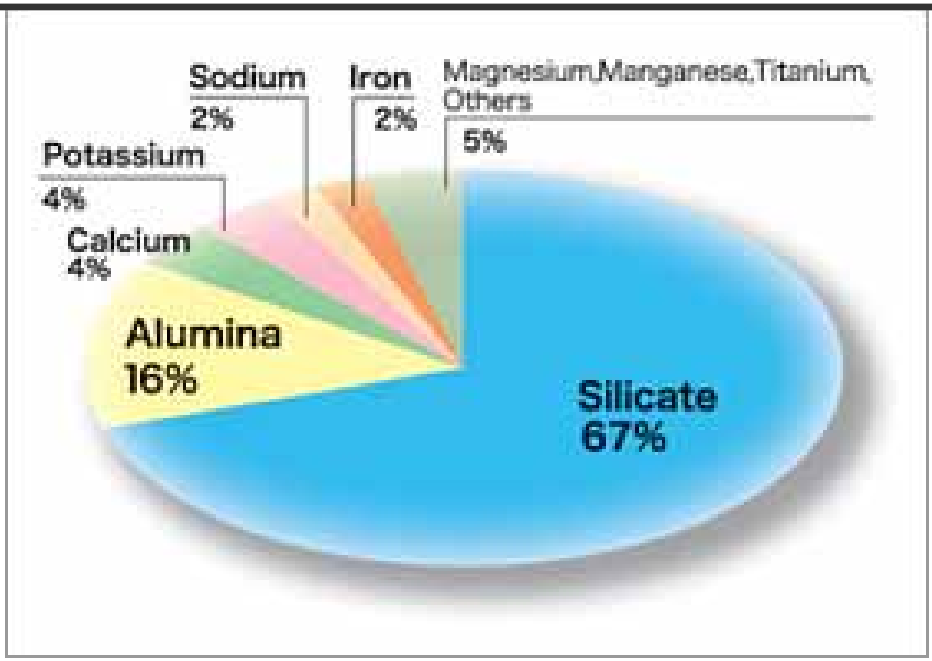
About *Shirasu*



The porous structure and composition of diverse substances

The elements in s*hirasu*

***Shirasu* has a porous structure made up of numerous holes in the extremely fine particles.**
Silicate, which is the major constituent of *shirasu*, is a powerful moisture absorber,and found in dehumidifying agents, and is the source of the superior humidity control properties of Shirasu walls.
Also, the alumina contained in *shirasu* is a natural strong gas absorber which removes odors and chemical molecules from the air by taking them into the cavities of the *shirasu* particles.
The unique features of *shirasu* are the extremely complex structure and composition, both of which cannot be created artificially. These features differentiate *shirasu* from the volcanic products of other regions.

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Shirasu Extraction Process

☆ ***Shirasu* is an eco-friendly building material**

*** *Shirasu* is already so fine that is dose not require a grinding process.**

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Malti-function interior use wall plaster

Satsuma-Nakagirisima-kabe Series

Coating thickness: 5㎜

Biocera

Coating thickness: 2．5㎜

Biocera light

Malti-function interior use wall plaster

Biocera

Coating thickness: 5㎜

コテ塗り

Color variations (total of 20 colors)


SN-1


SN-2


SN-3


BC-50


BC-51


BC-52


SN-4


SN-6


SN-9


BC-53


BC-54


BC-55


SN-11


SN-17


SN-20


BC-56


BC-57


BC-58


SN-21


BC-59

Finishing patterns


Soft-hailine


Arabake


Nadegiri


Kote-random


Yamanami


Wadachi

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Malti-function interior use wall plaster

Biocera light

Coating thickness: 2.5mm

コテ塗り

Color variations (total of 20 colors)

Finishing patterns

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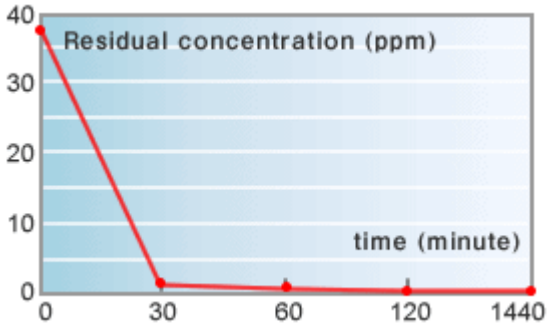
The Characteristics of Interior Shirasu Walls

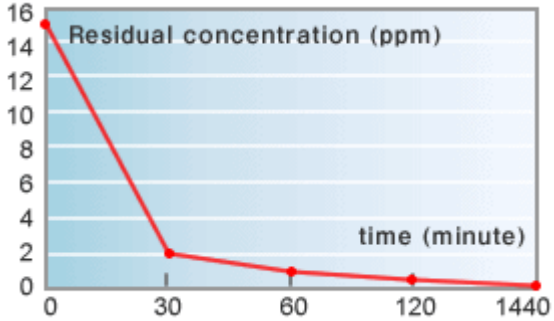
Deodorization

Deodorization performance data (residual concentration)

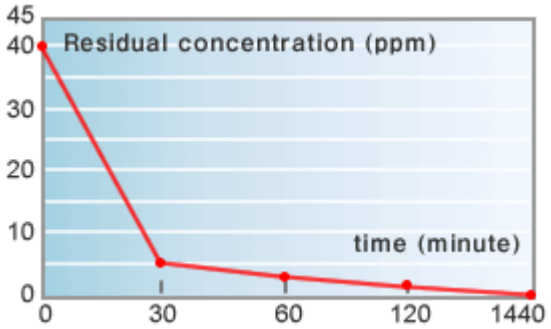
Ammonia deodorization performance (toilets and pets)



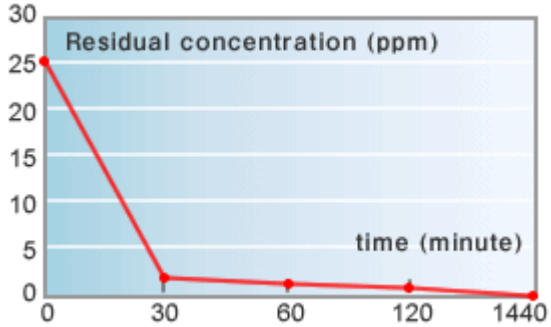
Acetaldehyde deodorization performance (tobacco)



Formaldehyde deodorization performance (chemical adhesives)



Methyl mercaptan deodorization performance (pets)



Problematic odors from pets, cigarettes, and other unpleasant smells in daily life will quickly disappear.
Unpleasant odors are banished from your home.

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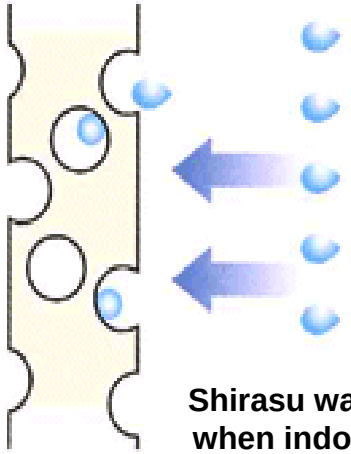
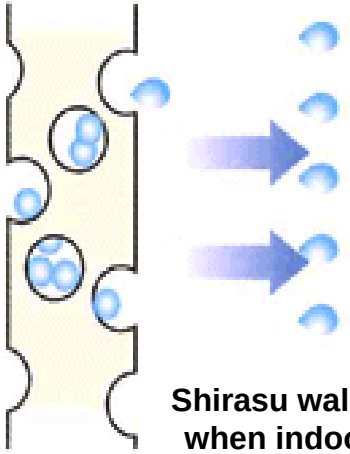
The Characteristics of Interior Shirasu Walls

Humidity Control



Shirasu walls absorb moisture when indoor humidity is high.



Shirasu walls release moisture when indoor humidity is low.

Formaldehyde absorption and discharge test

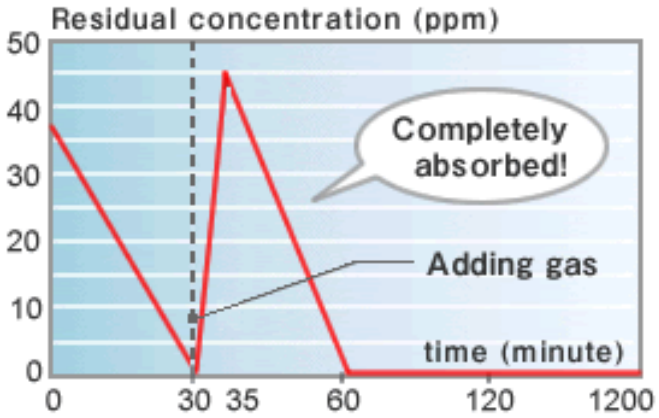
Indoor air remains dry, even during the rainy season. You will never have to worry about mold or dew condensation again.

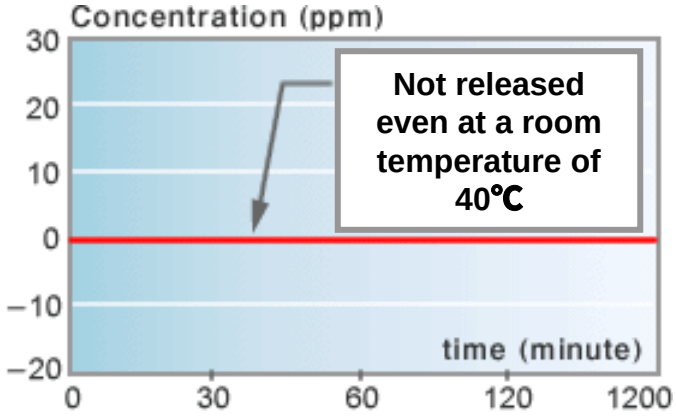
The Characteristics of Interior Shirasu Walls

All-Natural Materials

Shirasu is an effective material for the prevention of health hazards due to Volatile Organic Compounds (VOC).

□Formaldehyde absorption and discharge test





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The Evidence of Historical Use ①

The Pantheon（Rome）

※Architecture built in 128AD

It was created with volcanic ejection and the lime, which were produced in the vicinity of Naples at the time of the Roman Empire, and mixed with concrete.

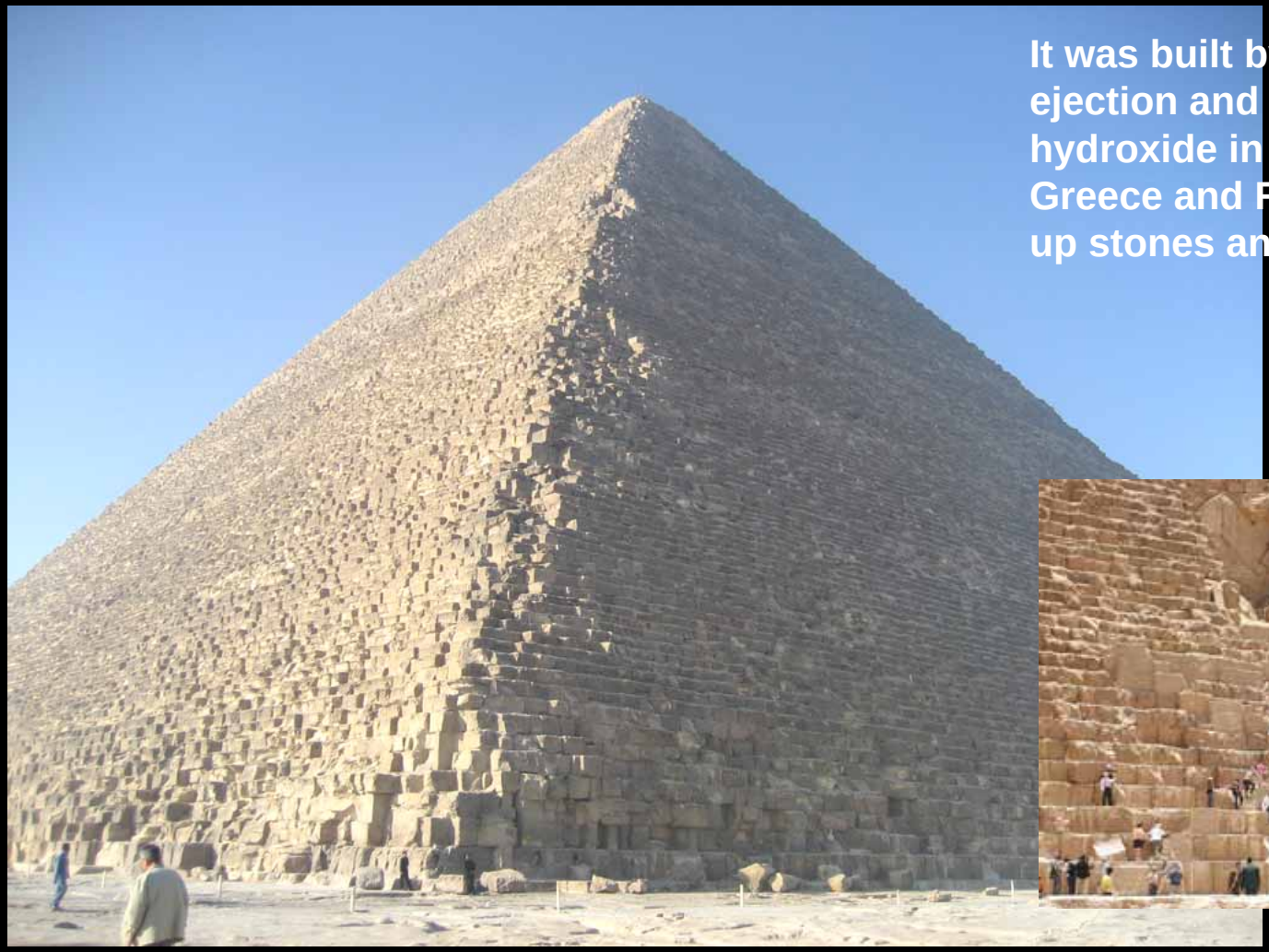
It has survived without any cracks until now.

Internal diameter =43m Thickness of the walls = 6m

There is a skylight of 9m wide in the top part.

The Evidence of Historical Use②

Pyramid Building in Egypt



It was built by mixing volcanic ejection and sand with calcium hydroxide in the time of Ancient Greece and Rome, and by piling up stones and bricks.

The Positive Impact on Your Life - Shirasu walls

1. Deodorization
2. Humidity control
3. Measures against sick-house syndrome
4. A long Life
5. Energy saving benefits
6. Good Design Award winner 2003*

* as the result of constructing interor-2.33Miom^2

Customers' Satisfaction

There is no tobacco odor after we smoke. And when I dry laundry indoors, there is no smell and it dries very well.

I keep a pet in my house, but I am delighted that there is no animal smell.

My biggest surprise was that the toilet was completely odorless. Next was the lack of dampness indoors during the rainy season.

People who visit our house tell us that it does not have the typical new-house smell.

I am happy there is no smell. I am also pleased that the walls are in very good condition.

Takachiho shirasu Corporation

Our uncompromised commitment to providing all-natural materials

In the same way that we select oraganic vegetables or natural mineral water for the sake of our health, we can be conscious of the quality of air in our homes.

Takachiho Shirasu plaster is comprised of all-natural materials.

ChemilessTown® Project

The project's aim was to build a citizen-based town to protect children from chemical substances. We built a house that releases as few chemical substances as possible in the campus of Chiba University in order to study the effects of sich-house syndrome.

The Experimental House built with Shirasu walls

Takachiho shirasu Corporation

The energy-saving hybrid house

The fusion of a natural energy and Shirasu

We developed a house which dose not release CO2 and is exteremely energy efficient, so many environmentally-conscious companies are interested.

Eco-Sky House

Mitsubishi Heavy Industries / OM

Experiment on photovoltaic power generation and solar technology.

Product used for the interior：BIOCERA

Energy Creation House

Shin-Nippon Oil Corp.

A carbon-free house with an effcient system to combine the use of fossil energy and natural energy.

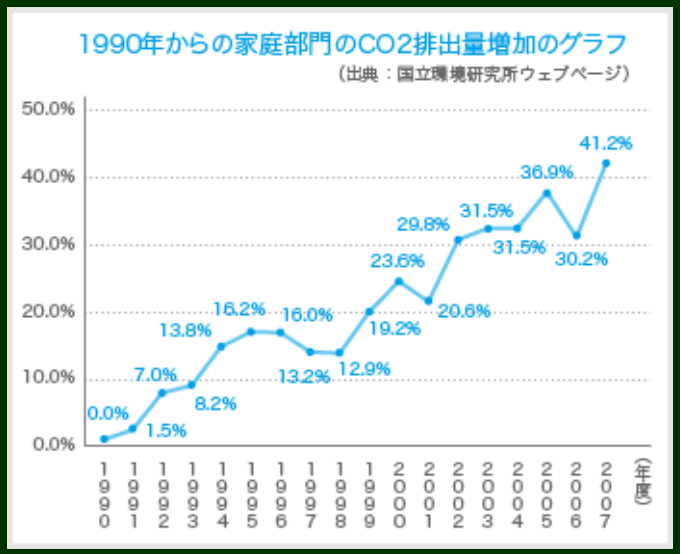
Product used for the interior：BIOCERA

Takachiho shirasu Corporation

The Eco-house Model Project of the Ministry of the Environment, Japan

Takachiho was chosen to carry out a joint study for the Eco Friendly Building, a government project, because of our expertise in the field of environmentally-friendly materials.

The project is exploiting Shirasu's deodorizing effect, humidity control capacity, and ability to produce negative ions. It also uses environmentally-friendly energy resources to reduce the emission of carbon dioxide.



In 2007, Japanese households are responsible for four times more CO^2 emissions than 1990.

The website of the Eco-house Model Project by the Ministry of the Environment. http://www.env.go.jp/policy/ecohouse/

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The Eco-house Model Project of the Ministry of the Environment, Japan

Project ② Building a natural symbiosis/symbiotic environment .
~ Live naturally ~
(Yamanashi City)

Project ① Building a symbiosis/symbiotic environment society for 21st century
(Kita-Kyushu City)

Takachiho shirasu Corporation

Our achievements

The Museum of Natural History in Kagoshima

Takachiho shirasu Corporation

Our Great Achievements

nakata.net cafe (Jingumae, Shibuya)

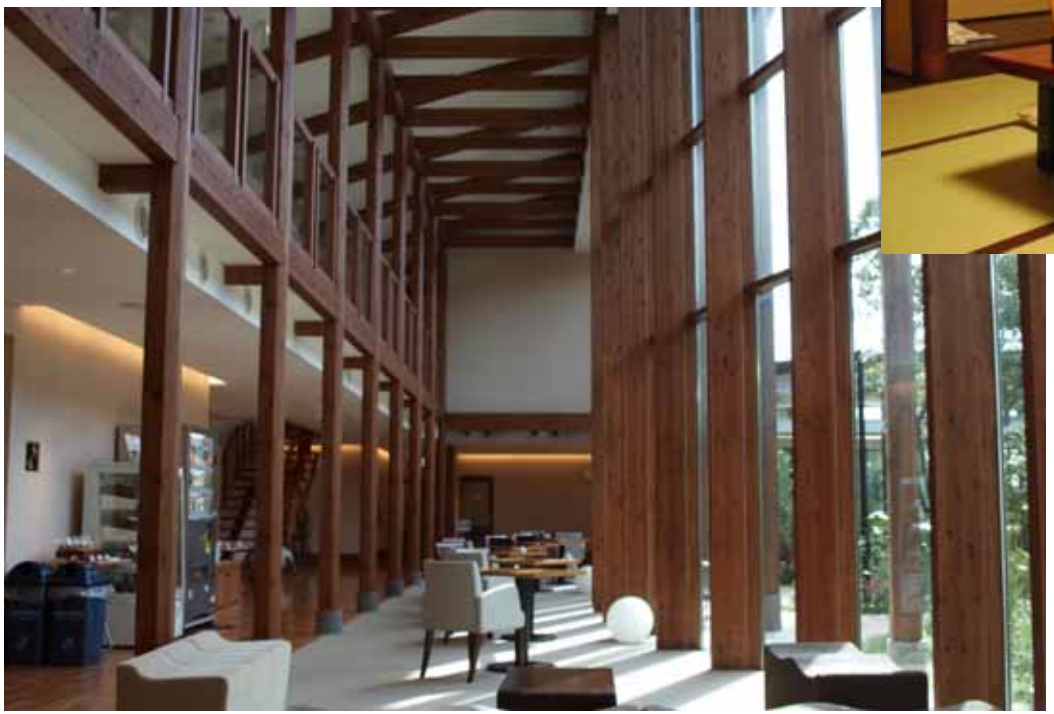
Our product was adopted by a temporary café built for the 2010 FIFA World Cup which Nakata produced himself.

Mr. Nakata, who was a first-class professionl soccer player of Serie A in Italy, produced and opened this temporary cafe [NAKATA.net.cafe] during the 2010 World Cup. His concept of this café – [Living with Nature, eco- friendly space] perfectly matches our company policy.

Our Great Achievements

Gunshou Kan – a hot spring hotel

(Nagano, Japan)



A hot spring hotel (Nigata)

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Our Great Achievements

Restaurant Nadaman at the site of AICHI Expo 2005

Trattoria fermata – an Italian Restaurant

Café & Bakery - Tokyo

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Our Great Achievements

Nursery - Tokyo

Hairdresser - Tokyo

Dental Clinic - Tokyo

Takachiho shirasu Corporation

Takachiho has taken part in the bid to promote the construction of long-lasting houses for national projects

The House made with Japanese Cedar Trees for Takachiho Wall Project

Building for the All-Natural Organic Material Project

Timber framework method

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Takachiho Walls Expand Abroad

National Public Facility – Korea(Kyon-Jyu)

Shirasu walls are in the Theater, Music Hall and Office.

◆ **Takachiho walls' remarkable properties are becoming well known worldwide.**

＊ **We have acquired patents in the USA, EU, Singapore, Korea and Taiwan.**

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Takachiho Walls Expand Abroad

Che-Jyu Islands-an international resort (Korea)

~ All 213 villas used Shirasu for their interior and exterior walls.~

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Taipei International Construction Material and Indoor Decoration EXHIBITION

Date： 8/15 – 18, 2011
Place：Taipei World Trade Center

Takachiho shirasu Corporation

Shanghai International Construction Material and Indoor Decoration EXHIBITION

Date： 8/17 – 20, 2010

Place：Shanghai New International EXPO. Center

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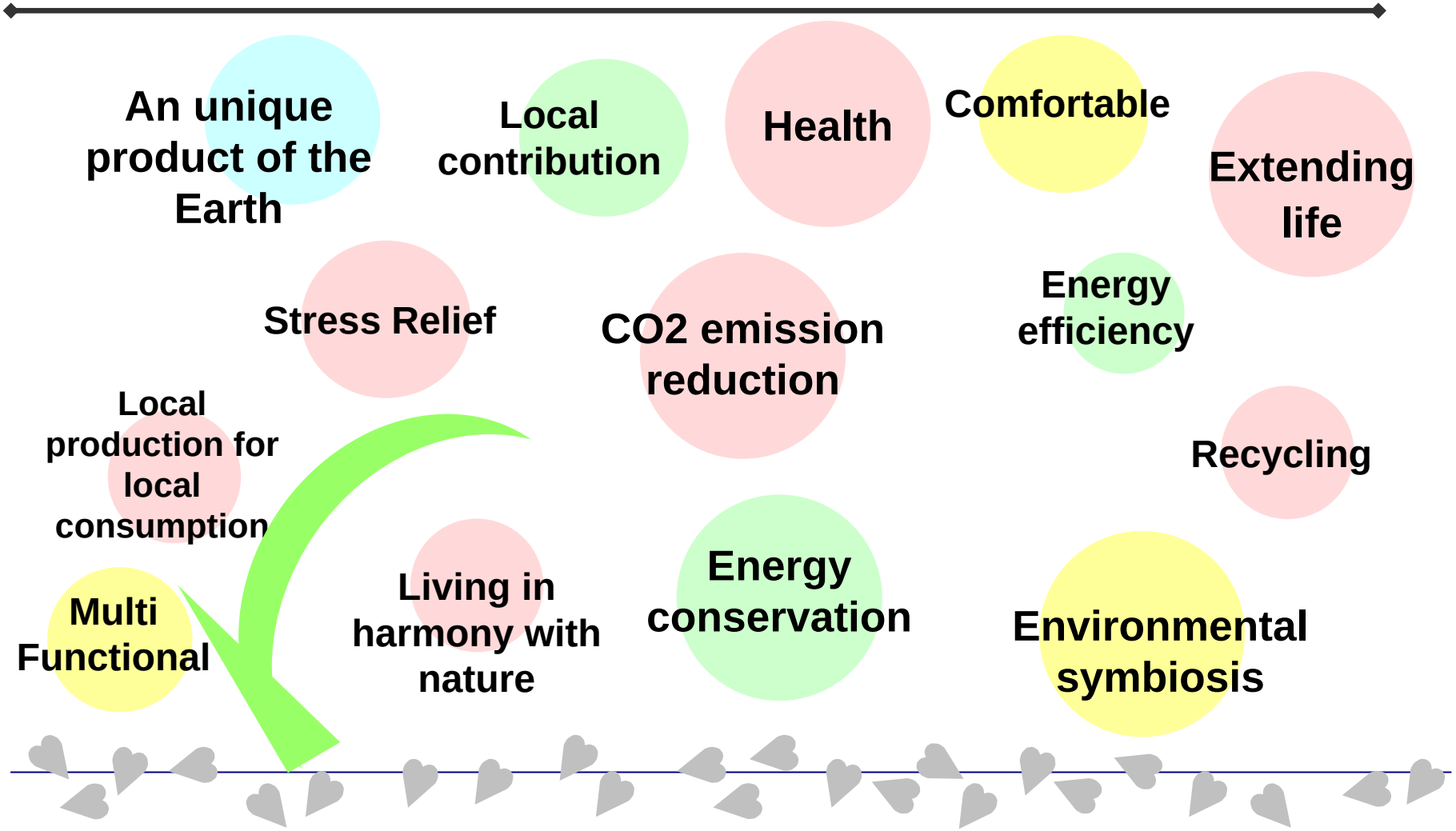
The Characteristics of Shirasu



Takachiho shirasu Corporation

About Takachiho＆Takachiho Shirasu Corpraition [History]

・**May 1970**
Shintome Architects is established in Sumida-ku, Tokyo.

・**June 1974**
Company name is changed to Takachiho Home-service Corporation. Yokohama sales office opens.

・**December 1976**
The head office moves to Takashima, Nishi-ku, Yokohama.

・**April 1999**
Kyushu plant starts operations.

・**April 2001**
Our plant acquires ISO 9001 certification.

・**June 2004**
The head office moves to the Minatomirai area of Yokohama.