

# **The Importance of Wood in Terms of Comfort and Well-Being in Buildings**

Nice Holdings, Inc.  
Corporate communication division  
Atsushi MIYAKAWA

# About Nice Group

Edo period (18<sup>th</sup> century) Start timber business  
1950 Founding “Ichiuri Mokuzai (Inc.)”  
1962 Join Tokyo Stock Exchange

Annual Revenue  
246.4 Billion JPY (approx. 2 Billion EUR)  
No. of Employees  
2500

## Corporate philosophy

We at Nice Holdings Group  
are committed to working together  
with our customers to build the homes  
of their dreams

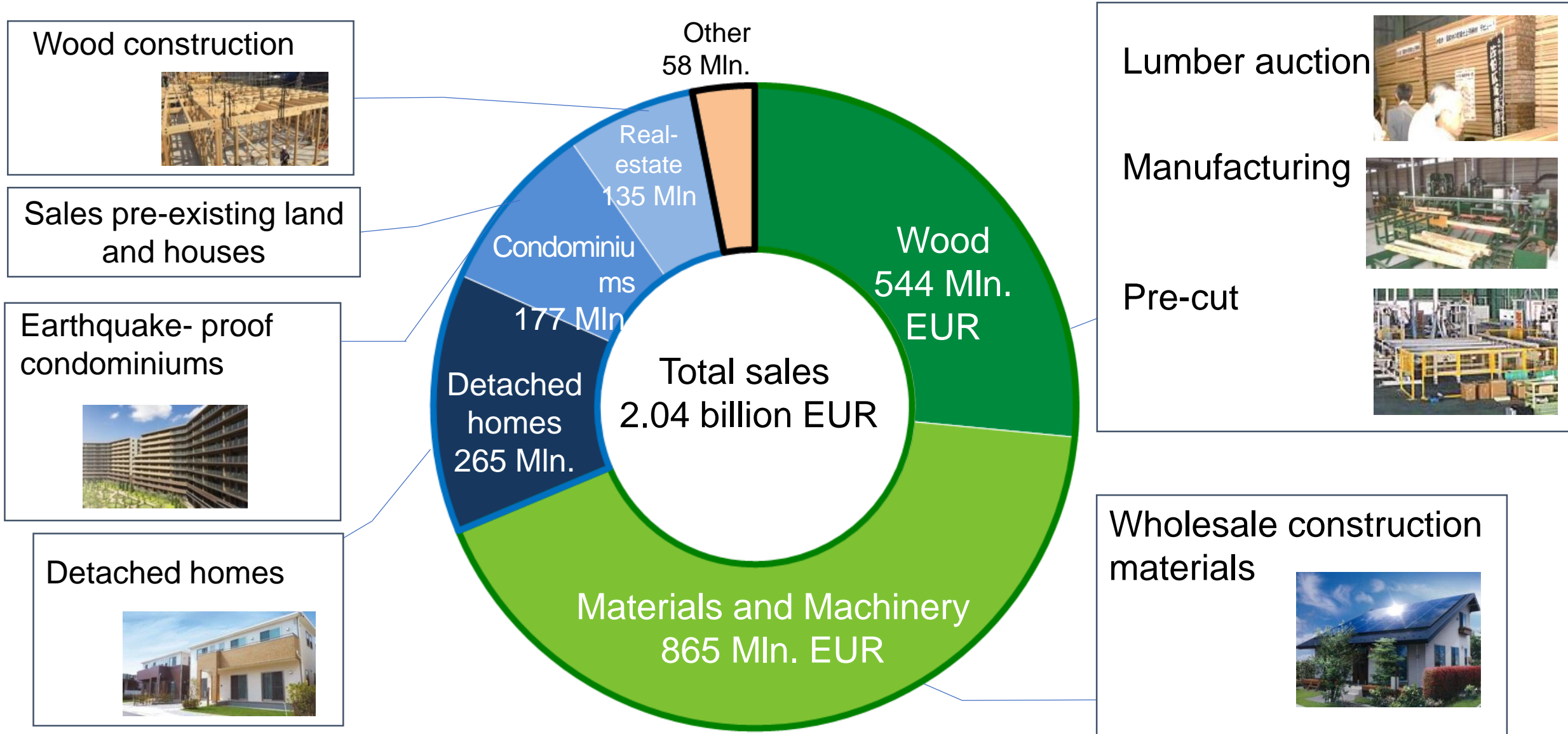


CSR

Nice Sustainable Forests  
(1800ha)



# Breakdown of businesses





# 2020 Tokyo Olympics National Stadium



Design Works and Construction Works of Taisei Corporation, Azusa Sekkei Co., Ltd. and Kengo Kuma and Associates JV / Courtesy of JSC



# About FCBA

Technological resource for the forest, wood, construction and furniture sectors, with a mission to promote innovation and technical progress and to contribute to the improvement of industry's productivity and quality by encouraging an integrated approach and implementation of synergies within the sector



Votre outil technologique pour les filières  
forêt, bois, construction et ameublement



# About FCBA

## FOUND ALL ACROSS THE NATION

### HEAD OFFICE

Furniture Environment Economy Biosourced  
Primary Processing Supply  
10 rue Gallée  
77420 Champs-sur-Marne  
Tel. +33 (0)1 72 84 97 84

### BORDEAUX

Industries Bois Construction Laboratoires Bois  
Allée de Boutaut - BP227 33028 Bordeaux  
Cedex  
Tel. +33 (0)5 56 43 63 00

### GRENOBLE

InTechFibres Domaine  
Universitaire CS 90251  
38044 Grenoble Cedex 9  
Tel. +33 (0)4 56 85 25 30

### CESTAS-PIERROTON

Advanced Forestry  
Biotechnologies  
71 route d'Arcachon  
33610 Cestas  
Tel. +33 (0)5 56 79 95 00

### TERRITORIAL DELEGATIONS

#### SOUTH-WEST

Allée de Boutaut - BP227  
33028 Bordeaux Cedex  
Tel. +33 (0)5 56 43 63 00

#### SOUTH-EAST

Domaine Universitaire CS 90251  
38044 Grenoble Cedex 9  
Tel. +33 (0)4 56 85 25 30

#### CENTRE-WEST

Domaine des Vaseix  
87430 Verneuil-sur-Vienne  
Tel. +33 (0)5 55 48 48 10

#### NORTH-EAST

60, route de Bonnencontre  
21170 Charrey-sur-Saône  
Tel. +33 (0)3 80 36 36 20

#### QUEST

15 boulevard Léon Bureau  
44000 Nantes  
Tel. +33 (0)8 35 10 45 82

#### GRAND-EST OFFICE

AgroParisTech  
14 rue Girardet - 54000 Nancy  
Tel. +33 (0)8 29 47 16 46



> Let's build the future together !

### Board of directors



**President**  
Jean-Claude Sève



**General Manager**  
Georges-Henri Florentin



**Programs Manager**  
André Richter

**Customers Direction**  
Pierre Bonfils



**R&D Direction**  
Andreas Kleinschmit



**Research Director**  
Frédéric Rouger



**Standardization office**  
Frédéric Henry



**Quality and certification quality**  
Alain Hocquet



**Communication Media relations**  
Pierre Bonfils



**Human resources Organization**  
Béatrice Pin-Jouenne



**Finances accounting**  
Pierre Sanchez



**Computing logistics**  
Robert Golja

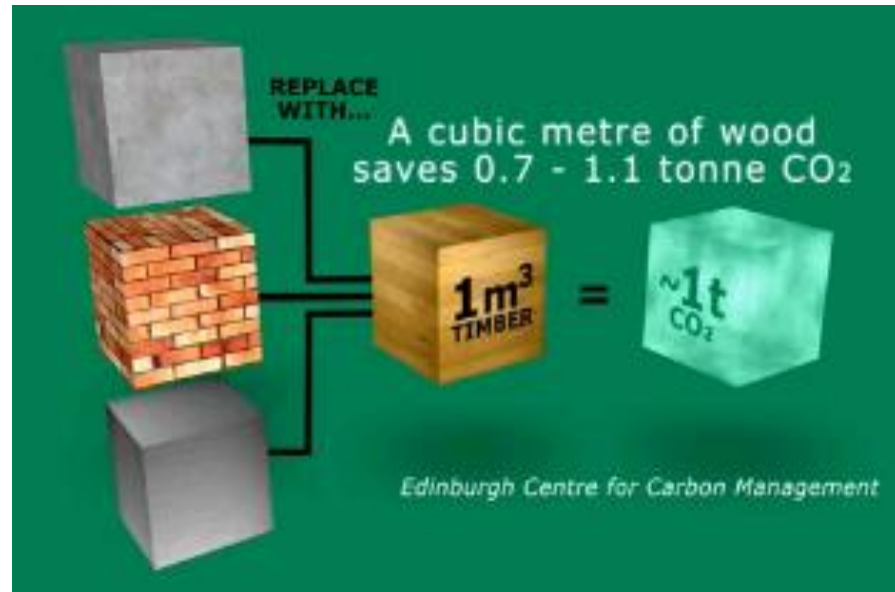


**Legal department**  
Samuel Bonpunt



february 2016

# Wood: Eco-Friendly material



# Wood: Health-friendly material





# Cooperation agreement between FCBA and the Nice Group

## Promoting the use of wood materials for construction



FCBA Director Mr. Florentin (left)  
December 2016 (Osaka, Japan)



### <Objective>

The sharing of information about Smart Wellness and conducting joint research  
(December 2016, 3 year plan)

# Japan's first facility for healthy and eco-friendly living

## Smart-Wellness Experience Pavilion

Healthy living themepark

**NICE** ナイスグループ



横浜市  
City of Yokohama



慶應義塾  
Keio University



Start 2015



- Warmth
- Ventilation
- Sleep
- Safety
- Eco-friendly



# 2015 Cooperation Agreement with the City of Yokohama

- 1 Diffusing the construction of healthy and sustainable buildings and eco-friendly living
- 2 Promoting the use of wood
- 3 Strengthening the safety of it's citizens by providing disaster countermeasures and elder care facilities
- 4 Promoting the charm of Yokohama focusing on Cultural Arts and Tourist Areas
- 5 Pursuing other mutually agreed upon items after conclusion of the 2015 agreement



Ms. Fumiko Hayashi  
Mayer of Yokohama



# Experience the connection between health and environment in a home



“Comparison room”

In the insulated and non-insulated rooms, visitors can experience the difference in temperature as well as blood pressure.



Effects from different insulation types



Healing effect by the fragrance of wood



Bicycle generator



Several types of wall details



Humidity adjustment of wood

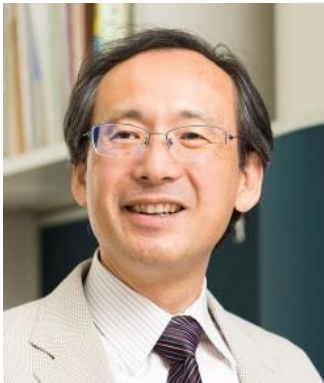


Visualization of energy consumption



# Conducting Research for the Acquisition of the Evidence

Joint research is conducted in cooperation between Ikaga Laboratory of Keio University and Nice group for acquisition of the evidence and other purposes.



Prof. Ikaga



Relationship between the floor surface temperature/floor materials and stress/blood pressure/heart rate  
An experimental study involving subjects at “Kurabe (comparison) Room,” on the second floor of the Center Building

Nice Corporation teamed up with Toshiharu Ikaga Laboratory, Faculty of Science and Technology, Keio University.



Effects of wooden interior walls of a house on recovery from exhaustion, and intellectual productivity during the day  
An experimental study involving subjects conducted in Smart Wellness House Building 1 in the summer

Nice Corporation teamed up with Toshiharu Ikaga Laboratory, Faculty of Science and Technology, Keio University.



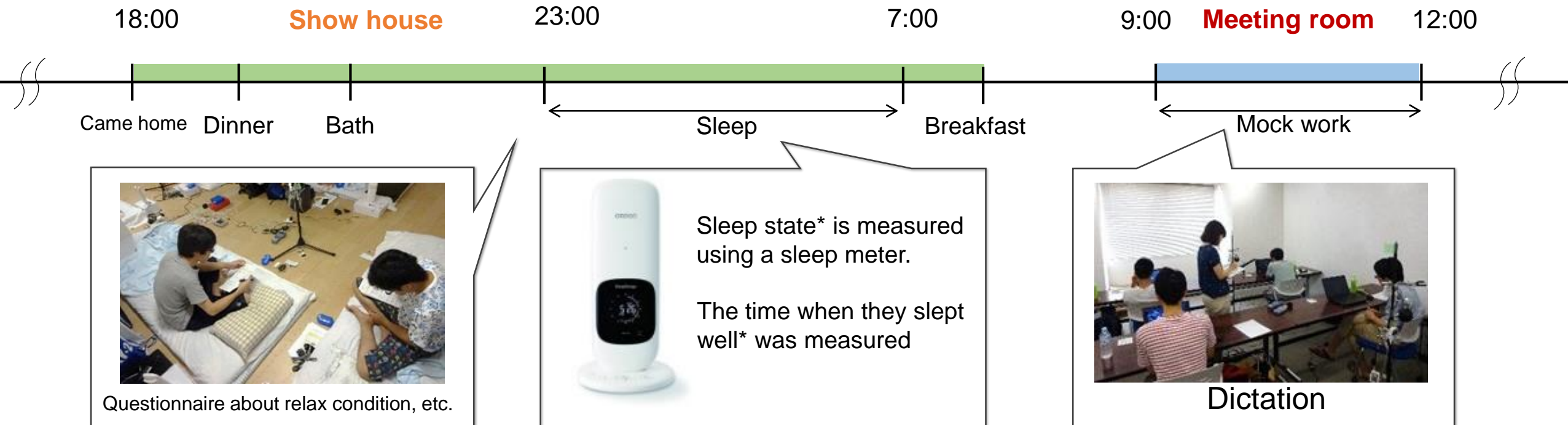
Effects of wooden interior walls of a house on sleep, and intellectual productivity during the day  
A comparative experimental study involving subjects at “Western-style room” on the second floor of Building 2

Nice Corporation teamed up with Toshiharu Ikaga Laboratory, Faculty of Science and Technology, Keio University.



# Measuring the effect of wood on sleep pattern and cognitive ability

■ Experiment schedule... the students would sleep in the show home (3 different rooms with varying levels of wood lignifications) and perform various tasks the next day.

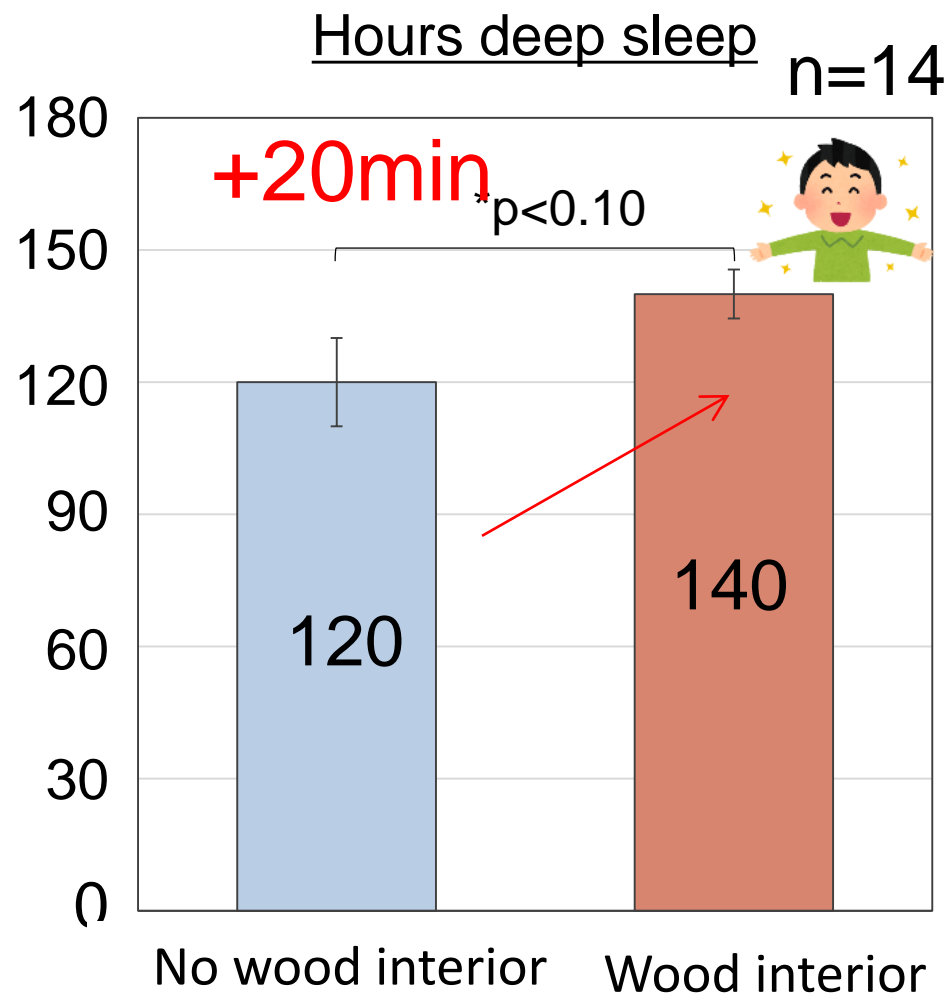




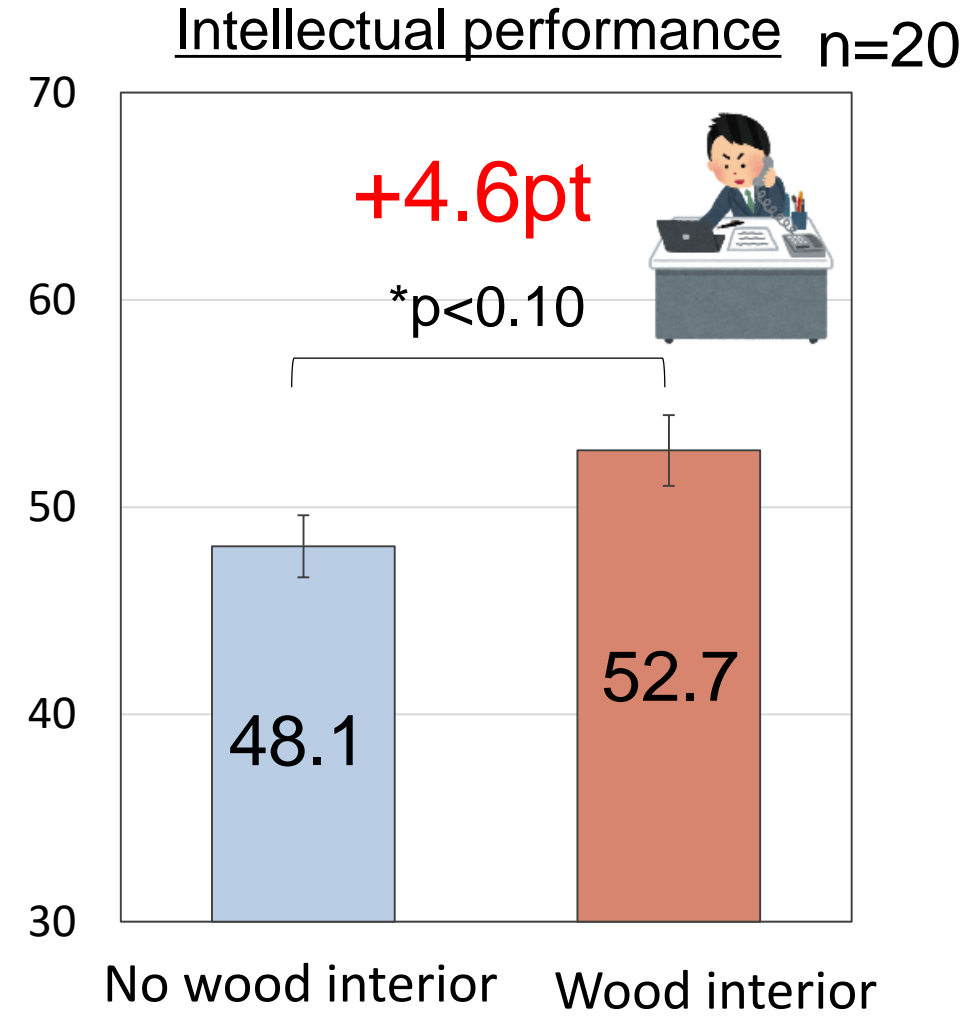
# Wood lignifications improve sleep and cognitive productivity



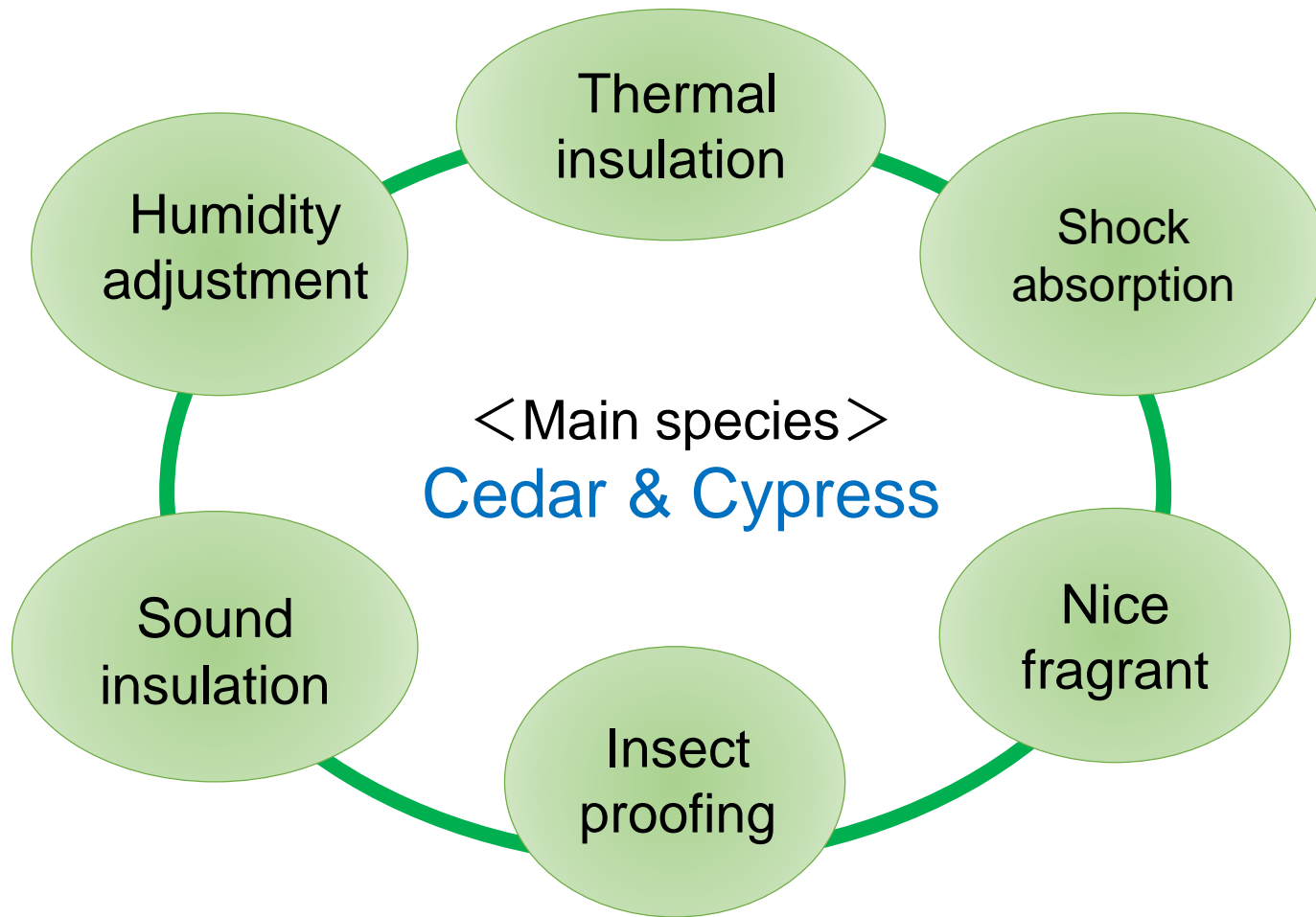
Time of sound sleep[min]



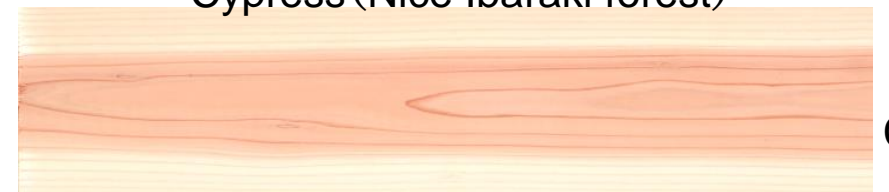
Correct answers[-]



# Positive effects of Japanese wood in living space



Cypress (Nice Ibaraki forest)



Cedar

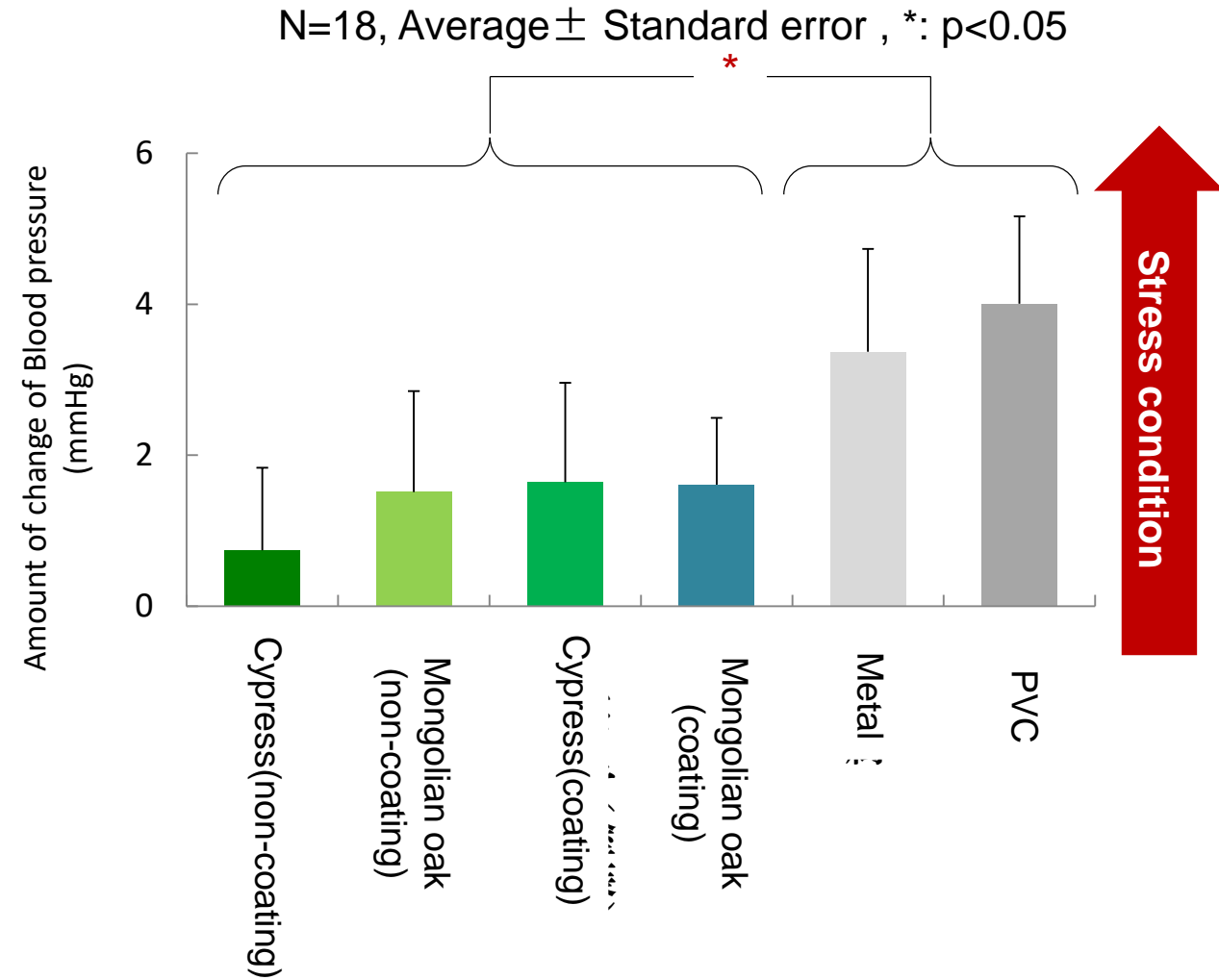
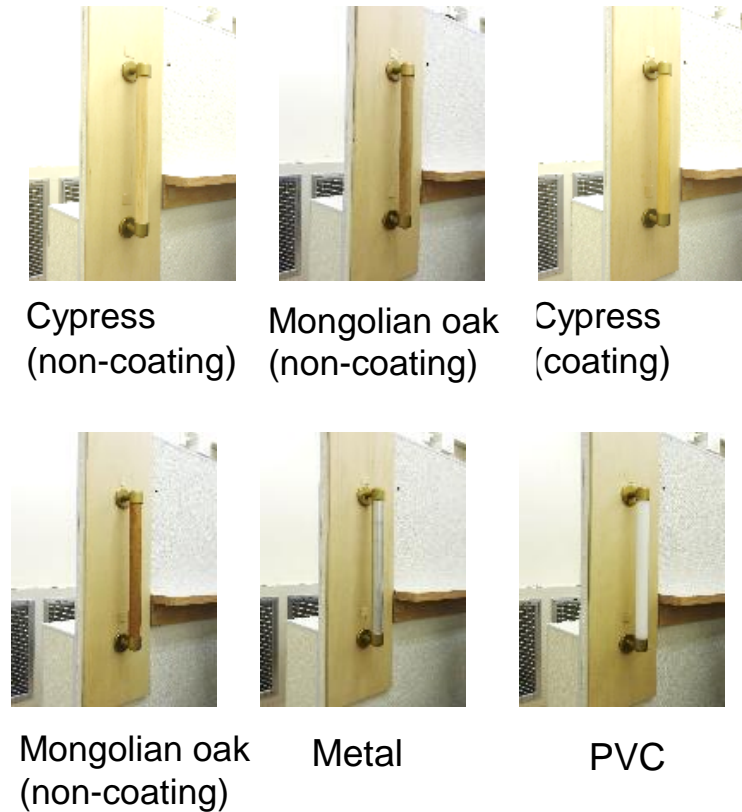


Cypress

Analyzing their effects through scientific research

# Stress reduction effect by touching wood

Different results of autonomic nervous activities for various tactile stimulation



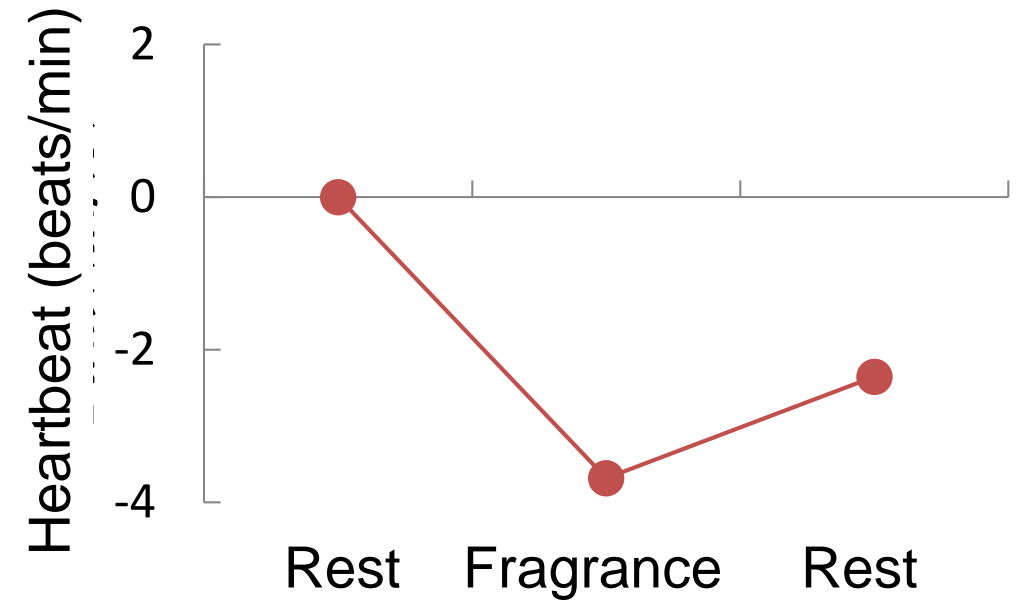


# Smell of wood helps you relax

## Reduction of baby's heart rate by the fragrance of wood

Subjects: 23 male and female babies (1 month - 3 month old)

Method: 2 minutes quiet → 2 minutes  $\alpha$ Pinene  
→ 2 minutes Limonene  
→ 2 minutes air → 2 minutes rest time



# Development project in Paris, France

## Concept “Wood and health”

***SUTEKI HOME***



Popular site near Euro-Disney

# Suteki Wellness Space in the Shamengo Villa Bordeaux



## SHAMENGO VILLA

BORDEAUX, FRANCE



**Build together on all continents Shamengo Villas whose concept was unveiled during COP21**

In December 2015 at Le Bourget, Shamengo occupied the Climate Generations space (Espaces Générations Climat) with a 150m<sup>2</sup> villa entirely designed using 50 green and social innovations as well as recycled material. Whether it be transportation, food, water, energy, housing, waste, the Villa allowed 50, 000 visiteurs to discover and experiment in an original way the mode of living of tomorrow! Discovery tours, edutainment workshops and meetings with Shamengo pioneers were on the agenda.



Numerous senior officials and media representatives visited Shamengo during COP21:  
BFM TV, iTélé, France 3, France 5, France Bleu, RFI ...



A successful event which enabled us to finetune the « recipe » of the Villa concept



# Shamengo Partners

Wide partnerships with more than 50 organisations

## Institutional partners

bordeaux  
euratlantique



## Private partners



## Academic partners

Local  
National  
International



UNIVERSITÉ DE  
GRENOBLE



HEC MONTRÉAL

SHANGHAI ART & DESIGN ACADEMY



INDIAN  
INSTITUTE OF  
MANAGEMENT



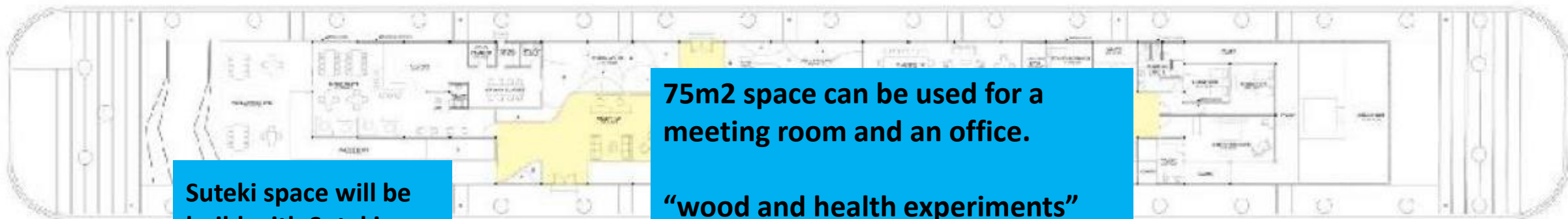
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## Media partners



## Association and Foundation partners

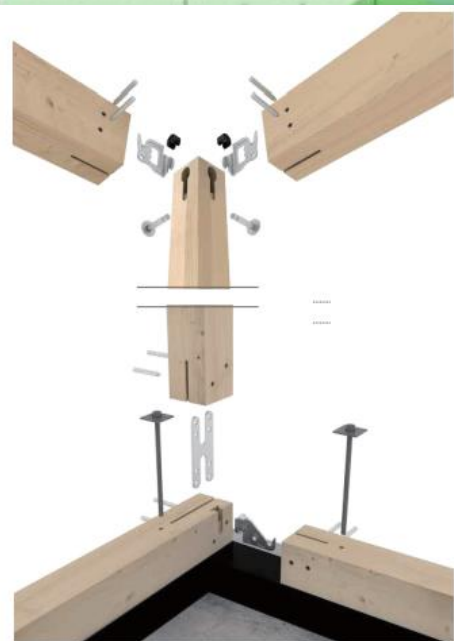




Suteki space will be build with Suteki Wood System

75m2 space can be used for a meeting room and an office.

“wood and health experiments” will be performed



Wellness Program



**SUTEKI**

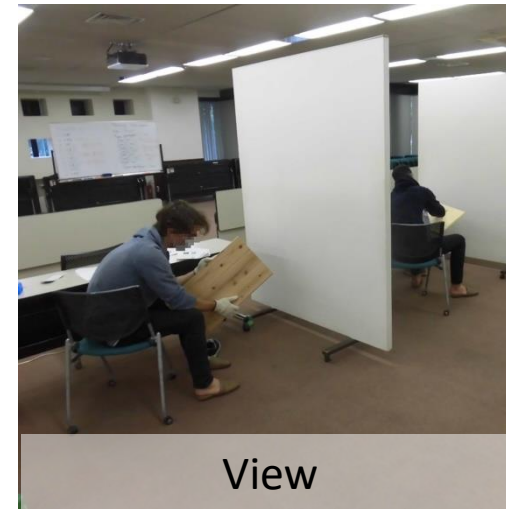
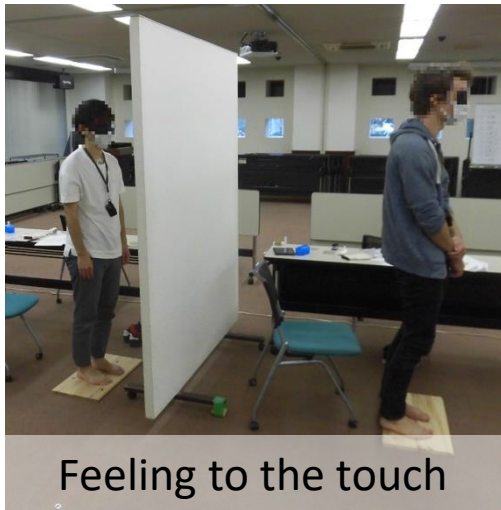
Wellness Space  
in

SHAMENGO VILLA  
BORDEAUX, FRANCE

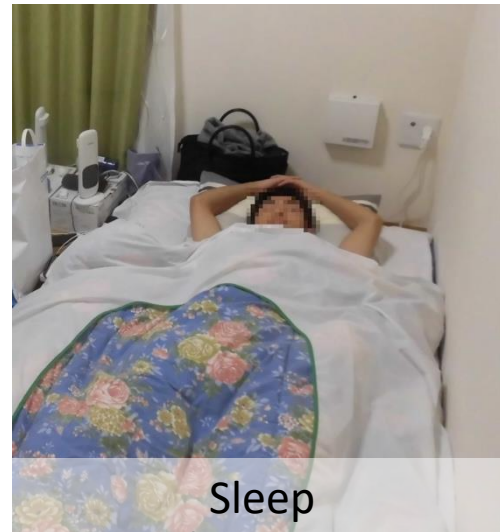
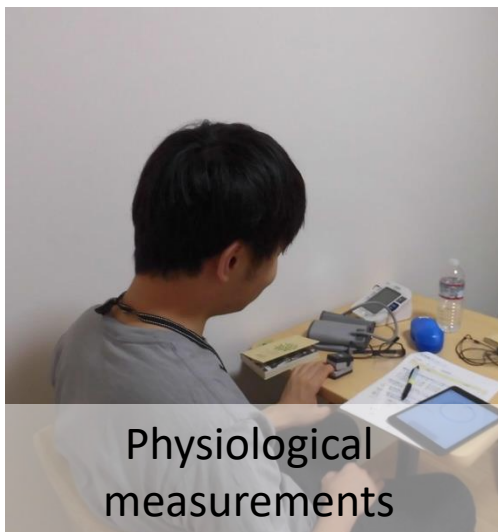


# The latest experiment with FCBA(October 2018)

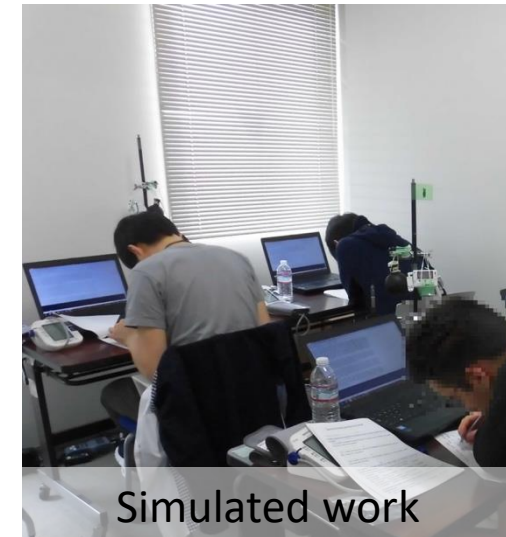
## ◆ One day experience



## ◆ Experience with overnight stays



Pierre Jaouen







# Overnight experience: effect of the wooden interior

## ◆ Summary of the experience

Objective	Influence of the wooden interior on sleep and intellectual productivity
Experience place	Model House (Nice) / Meeting room
Planning	2018/10/15~27/10/2018 3 nights per case
subject	4 French students and 4 Japanese students

## ◆ Case

	Case 1 No wood	Case 2 Wood
Pictures of the interior		
Ceiling	Wood pattern coating	Crenellated wood
walls	Vinyl wallpaper (white)	Vinyl wallpaper (white)
Ground	Wood pattern coating	Solid wood (ceder)

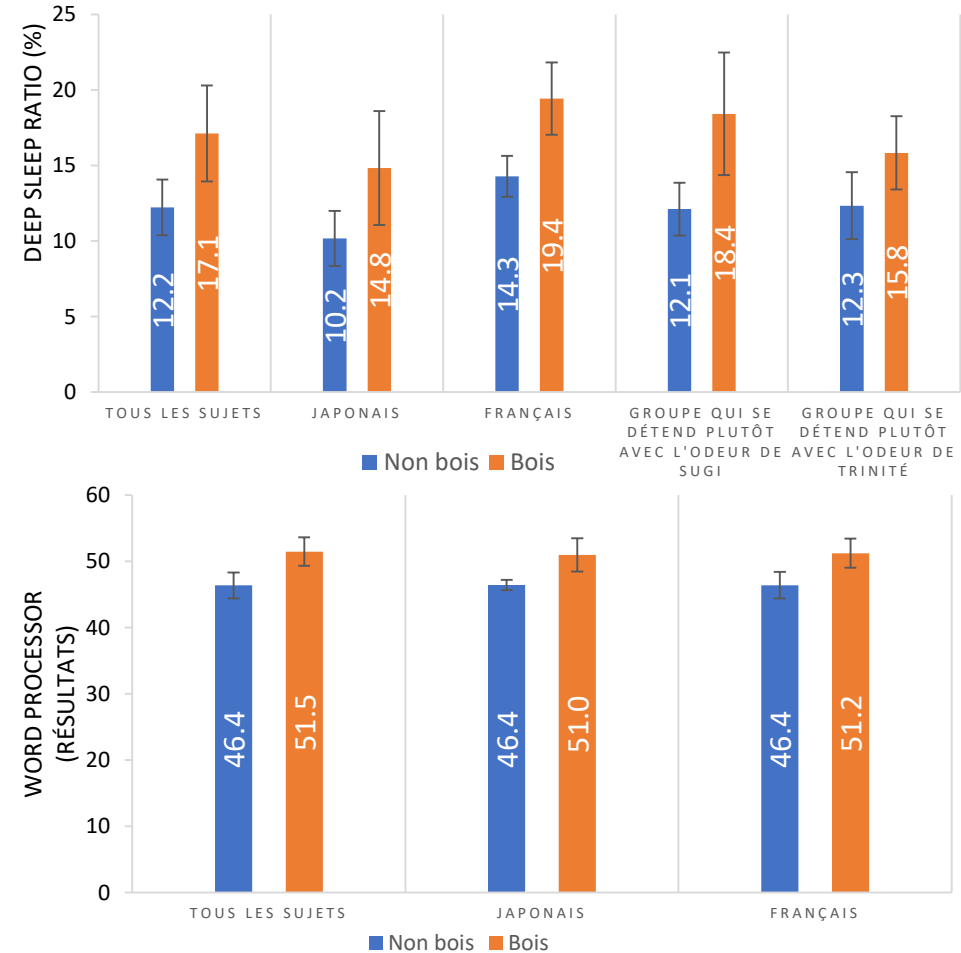
Pierre Jaouen

# Conclusion

◆ Objective: Analyze the effects of the wood interior on deep sleep and productivity the next day by considering differences by country of origin

◆ Results :

- Increased deep sleep time (Japanese and French)
- Sleep more appreciated from the questionnaires (Japanese and French)
- Level of relaxation before bedtime during deep sleep increased (Japanese)
- Improved results for simple tasks (Japanese and French)
- Improved results for creative tasks (Japanese)



Prospects: Results of French subjects to confirm (low sample, sleep time too short)

# Upcoming research project

## City Zen Wood Project Japan and French collaboration



### Objectives :

- To evaluate the impact of the wood material used in interior flooring and walls, joinery and interior design on the comfort of building users.
- To mix the physical, psychological and physiological approaches to the assessment of inner comfort

**Duration :** 1 year (ending December 2019)



Thank you for your attention