



Korea Water Underfloor Heating System



호야온돌

www.hoyaondol.com

HOYA ONDOL

New Eco-friendly Composites
Hybrid Ondol Panel



YouTube "hoya ondol"

HOYA ONDOL

Korean traditional heating system

The ondol, Korea's traditional underfloor heating system, has been heating the houses of Korea for thousands of years.

It was invented to manipulate the flow of smoke from fireplaces instead of attempting to use the actual fire as the source of direct heat, like most Western heating systems.

We invented New Eco-friendly Composites Hybrid Ondol Panel not only for inheriting the traditional culture from ancestors but also for being widely utilized in modern life.



High thermal conductivity
and heat storage



Good for human body
with natural mineral



Save time and money
with easy fit systems



High compressive
strength panels (24MPa)

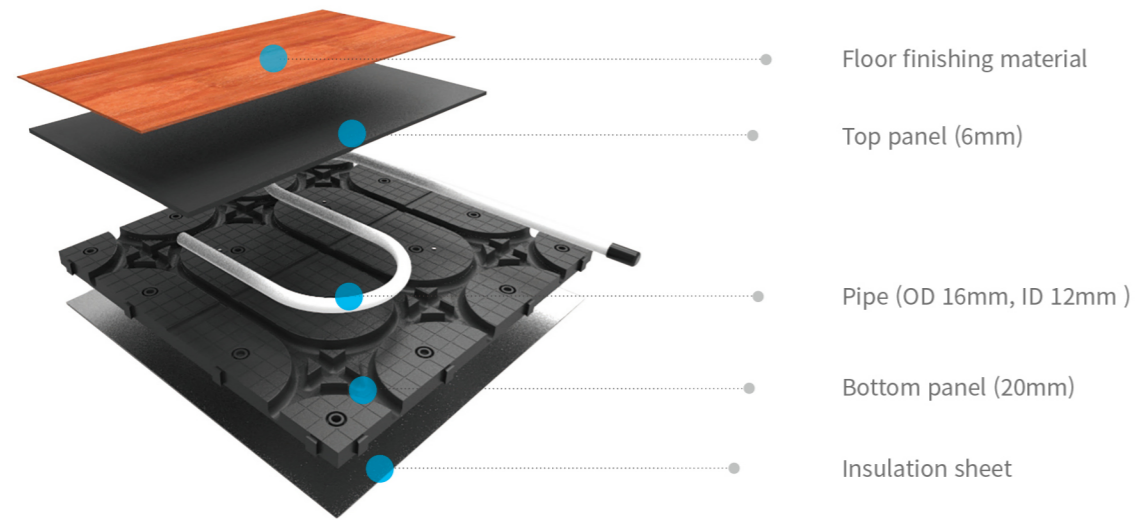


Semi-permanent
and re-useful

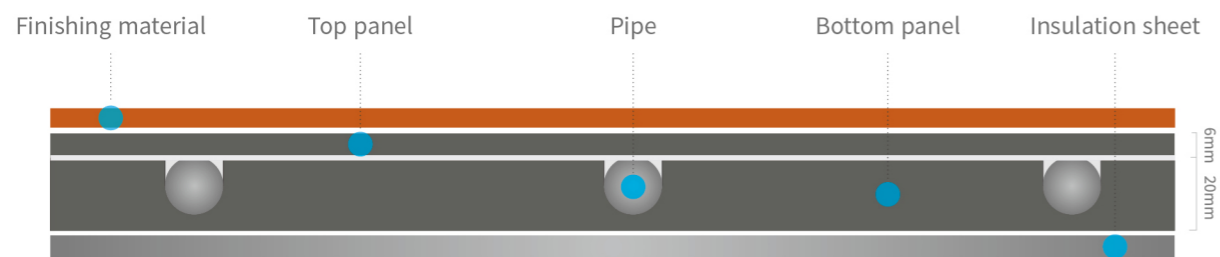


100% Post-consumer
recycled panels

HOYA ONDOL Components



Product Sectional Plot & Data

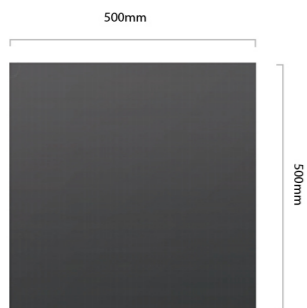


Top Panel

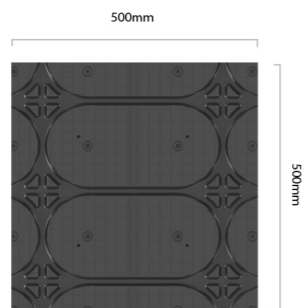
Bottom Panel (A)

Bottom Panel (B)

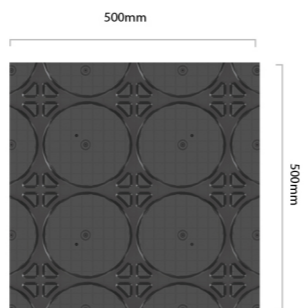
T : 6mm



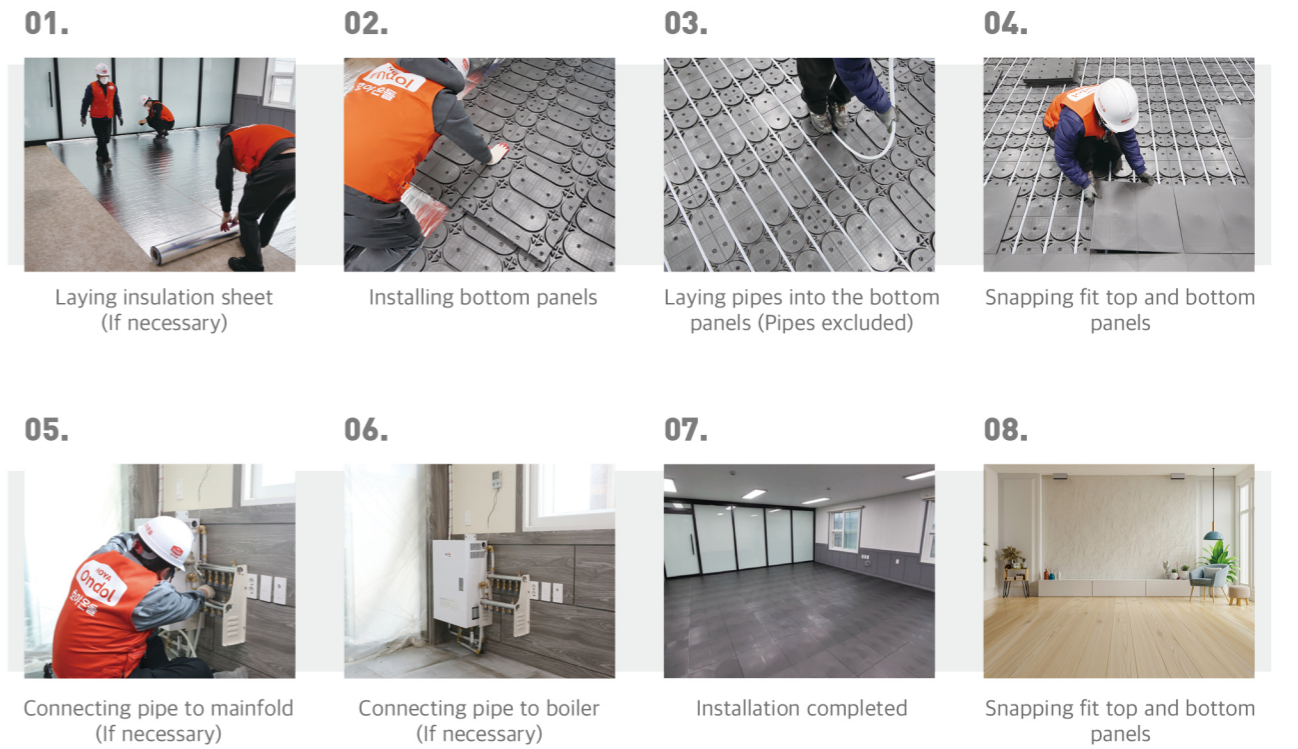
T : 20mm



T : 20mm



Installation Procedure



Applicable Area



Apartment



House



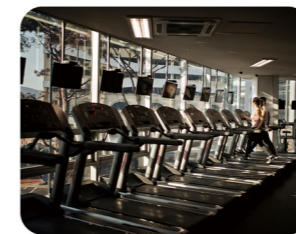
Accommodation



Office



Class room



Indoor sports



Religious building



Cottage

Advanced Manufacturing Systems

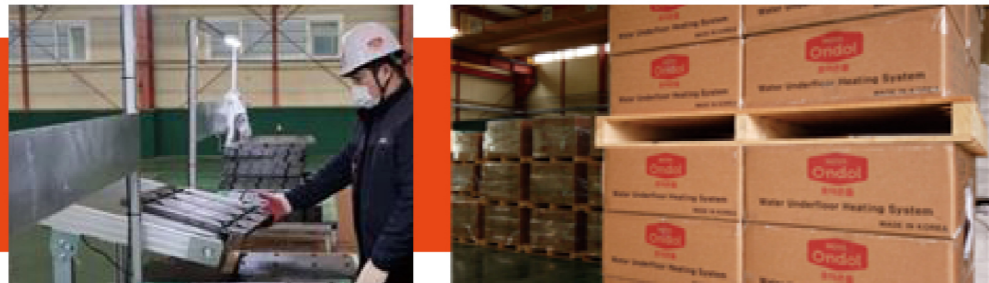
Material Auto-feeding System



Computer Integrated Manufacturing System



Product Testing & Packing



Major Material Ingredients



- Graphite
- Elvan
- Pozzolan
- Propane polymer with ethylene

The Best Quality

Test Report



TEST RESULT		Serial No. of Issue : KEAA21-141(R) page/ 2 / (6) Pages	KRAA
TEST ITEM		Test Result (SAMPLE NO) N - 1	NOTE
Head loss	Shall be within the manufacturer's indication (kPa).	3	3
Temperature rise after operation	Shall be within the manufacturer's indication (The time required).	43 minutes	3
Surface temperature distribution	The difference between high temperature and low temperature on the upper surface of the hot water panel shall be within 5 K.	3	-
Radiant heat capacity	Shall be more than manufacturer's indication (J/m ² · s)	146	3
Deformation by heating repetition	No crack, shrinkage, expansion, condensation, etc.	None	-
Flatness	The warpage shall be less than 5 mm.	3	-
Load	There shall be no crack in use, and flushness between two adjacent panels shall be within 1 mm.	Crack	None
		Flushness	1
Pressure resistance	No deformation and leakage.	None	-
Impact resistance	No deformation, crack, damage and leakage in use.	None	-
Local compression	There shall be no dent, leakage, etc., and deformation shall be within 5 mm and the residual deformation shall be within 2 mm.	Dent, leakage	None
		Residual deformation	5
Corrosion resistance	No rust, bulge and delamination.	1	-
		N/A	4

Note : 1. This report is results for sample submitted by the client, so this report have not representation for entire products.
2. Duplicate of the testing certificate to be ineffective, and re-issuance of the certificate shall meet with president's approval.

8/11-07 K E A A A4(210 × 297)

Radiant Heat Capacity
- 146 J/m²·s -

KIFA KOREA FAR INFRARED ASSOCIATION KOREA INSTITUTE OF FAR INFRARED APPLIED ESTIMATION	
CERTIFICATE OF TESTING RESULT	
Serial No. of Issue : KFI-028 Name of Applicant : PARK, JIN CHUL(HEYA HOMETECH Co. Ltd) Address of Applicant : 937, Dehang-ro, Gansan-si, Jeollabuk-do, Korea Date of Receipt : 5. 28. 2021 Name of Test Sample : HOYA Ondol	
TEST RESULTS	
Emissivity (5 ~ 30 μm)	Emission Power (W/m ² ·μm, 40°C)
0.903	3.64 × 10 ²
1) Test Method : KIFA-FI-1005 2) The temperature of 40°C is provided by the applicant. The above experimental results were measured in comparison with BLACK BODY by using the FT-IR Spectrometer. 3) Test Results : Refer to the Enclosed 4) Usage : Quality control, Etc. * This certificate of testing result shall be used within the purpose of its defined usage.	
6 2 2021 month day year Signed <i>Choi T.S.</i> The director of Korea Institute of Far Infrared Applied Estimation	

Far Infrared Emissivity
- 0.903 -

High Purity Germanium (HPGe) Radiation Detectors, Unit: Bq/kg				
Nuclide	Test Methods	MDA	Test Results	Remark
Sample - 1				
U-238 series	Pb-214	High Purity Germanium (HPGe) Radiation Detectors	0.69	7.13 Comparison of Rn-222(Radon)
K	K-40	High Purity Germanium (HPGe) Radiation Detectors	2.11	91.3
Th-232 series	Ac-228	High Purity Germanium (HPGe) Radiation Detectors	0.88	6.87 Comparison of Rn-220(Thoron)

Affirmation Prepared by : Jeong taek Kim Technical Manager Name : So dam Jeon

KOTITI Testing & Research Institute

Primary Contact : Yun Ja Lee T: 82(2)3651-7116 E: jlee@kotiti-gd.com Backup : Jung Hyun Lee T: 82(2)3651-7113 E: jhlee@kotiti-gd.com

Not Detected Radiation

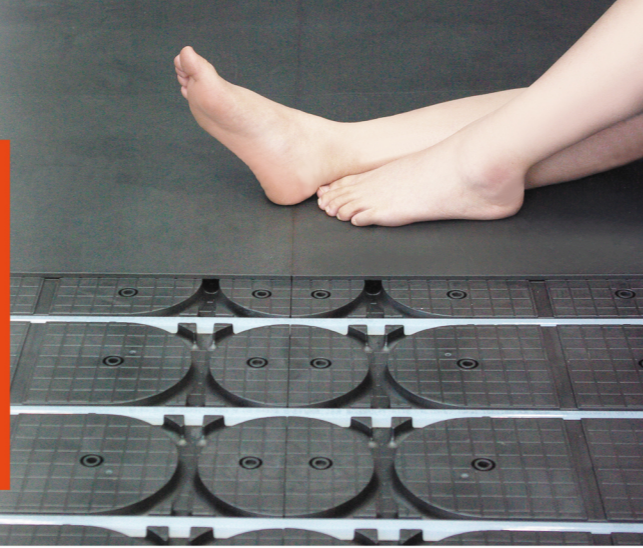
Koptri				
Table 2-5. Test Results (Compression Strength)		Unit	Test Method	Test Result
Koptri-20-08-19420-4	Compressive Strength	N/mm ²	UTM (Consulted with Client)	24

Note) Test Speed: 1 mm/min

End of Test Report.

Compressive Strength
- 24Mpa -

The Key Difference



More comfort



- Cozy and comfortable environment
- Warm feet and cold head

Healthy and safe living by Far Infrared Radiation



- A long way in terms of therapeutic and medical effects on the human body

Reduced heating bills



- HOYA ONDOL can reduce energy consumption and heating costs

Greater heating control

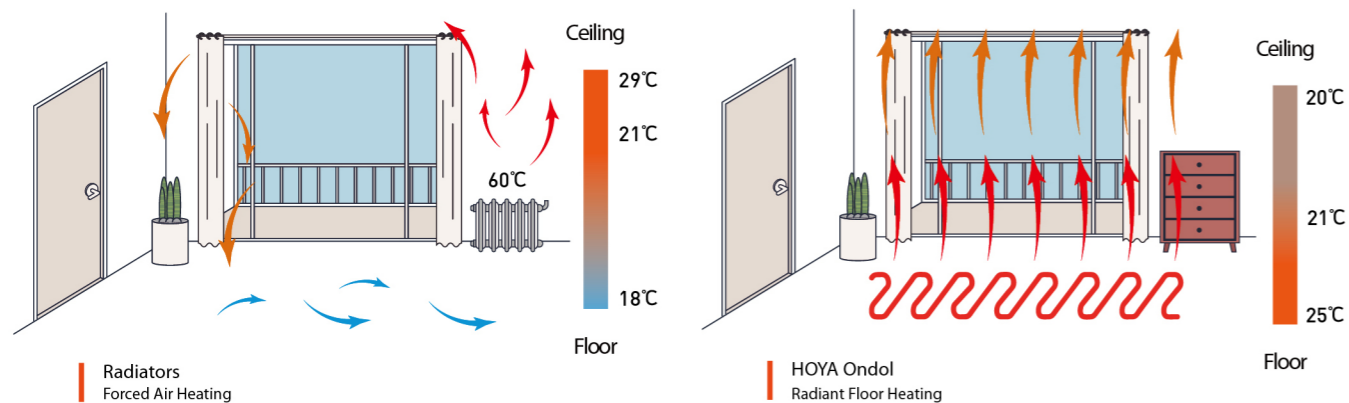


- Individual or multi-room temperature control

More living space



- The space of furniture in the house because heat source is under floor



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