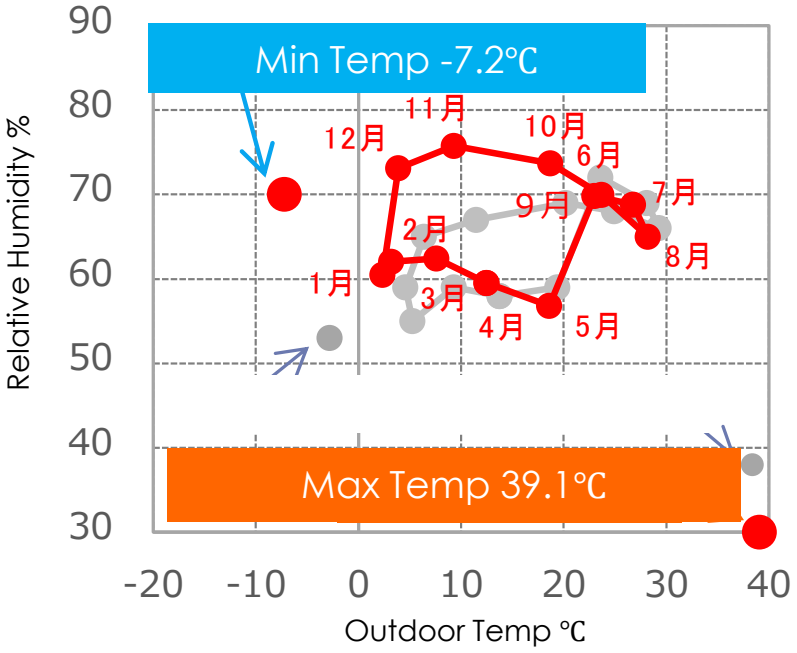
# Project site

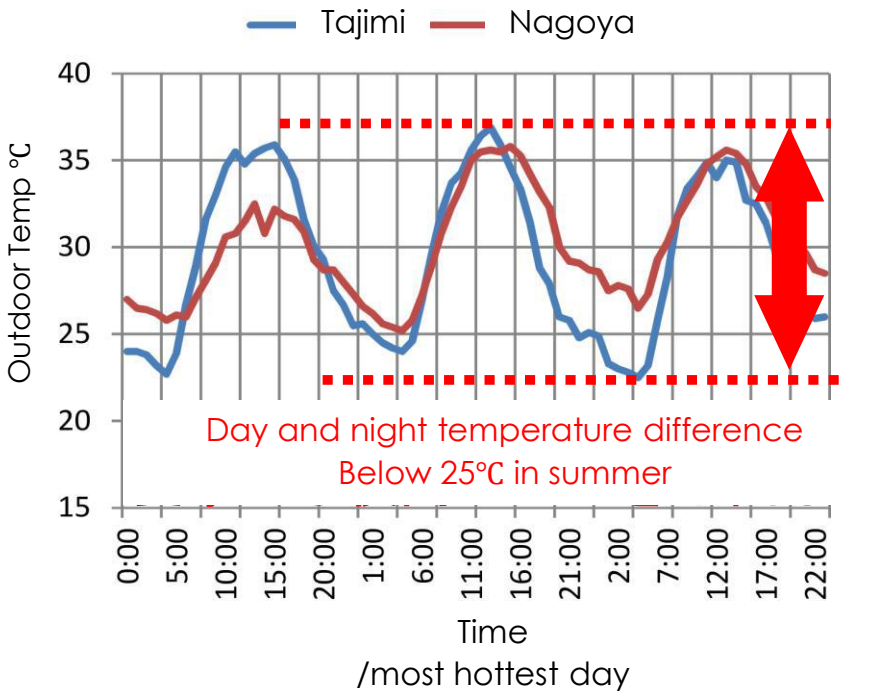
Mountain slope site with urban area and river in the south


# Climate conditions of the site

The site is a basin sandwiched between mountains.

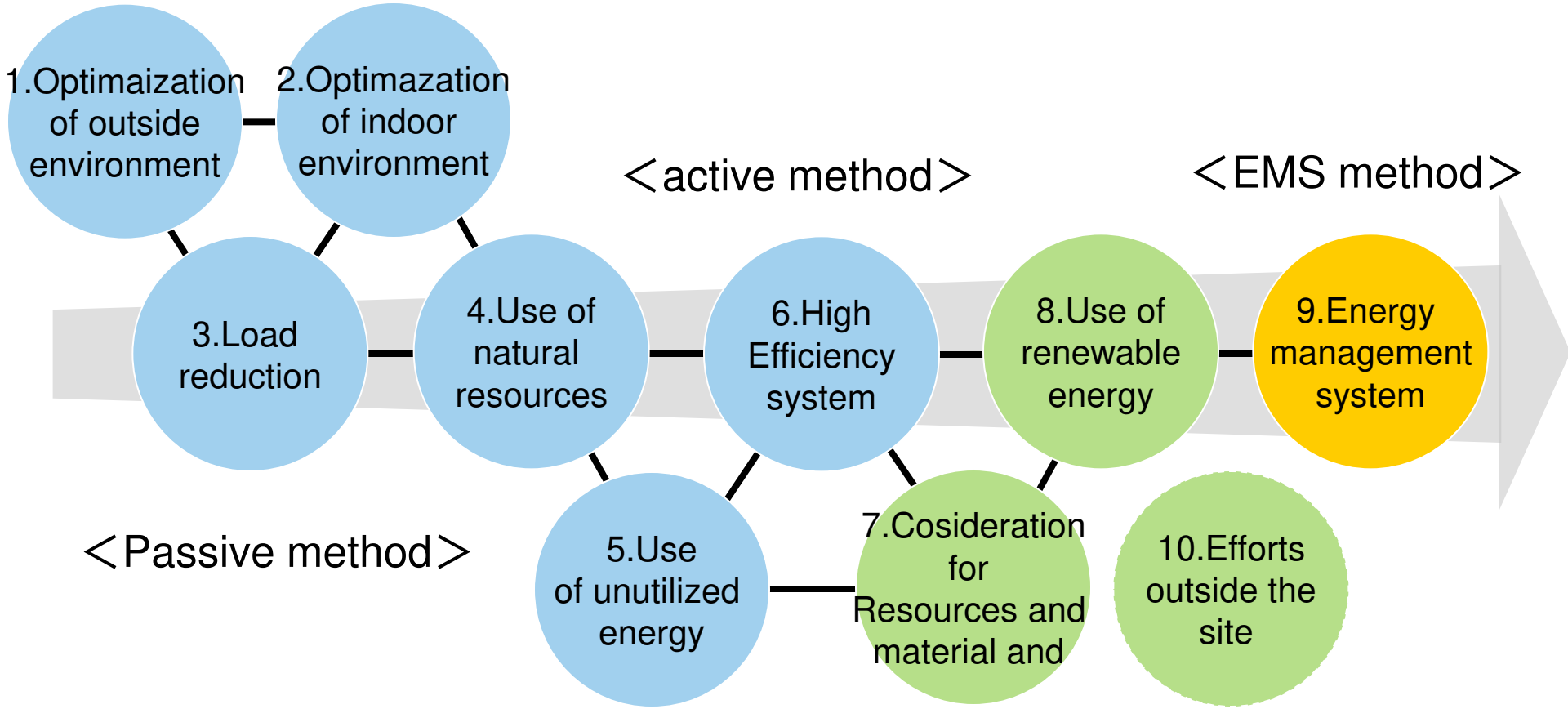
High temperature and day and night temperature difference in summer.



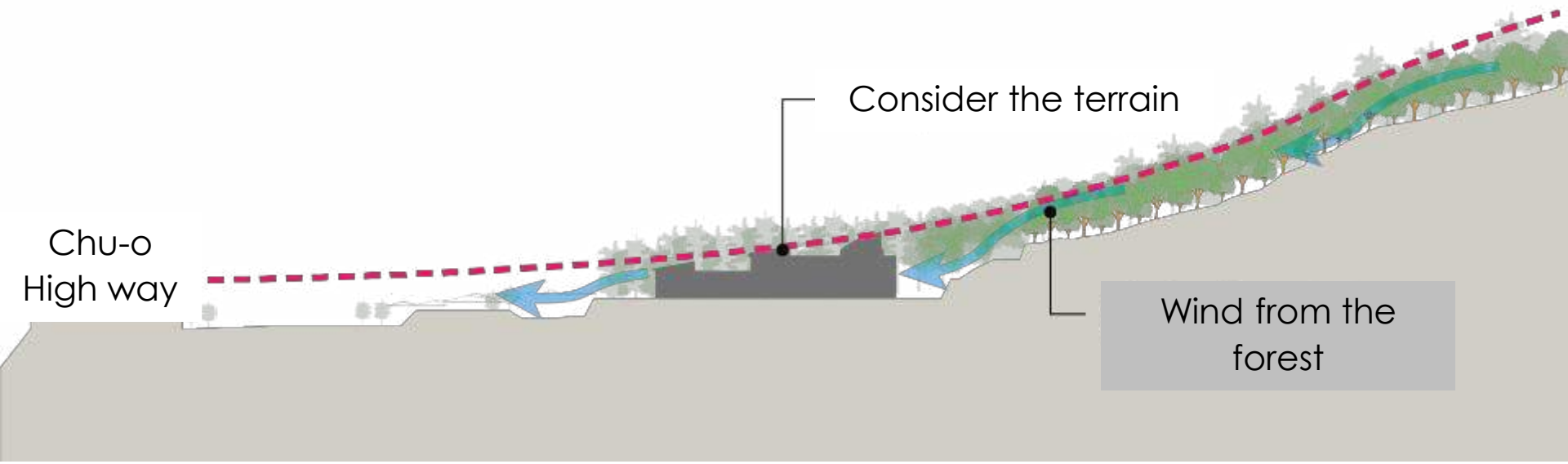




Source: Extended AMEDAS Weather Data 2002

# Design process of achieving zero energy

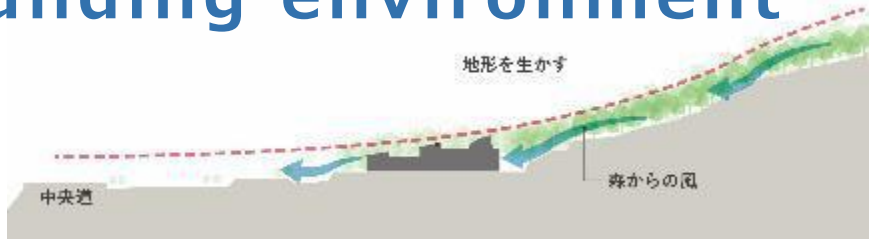


# Placement of building along ridgeline of mountains



# Familiar with the surrounding environment

Arranged along the slope of the
mountain facing the south,
the building height was kept low



# Familiar with the surrounding environment

From any classroom you can have a view to the city


# Familiar with the surrounding environment

The School building with a horizontally spreading mountain back

# Exterior view from the main gate

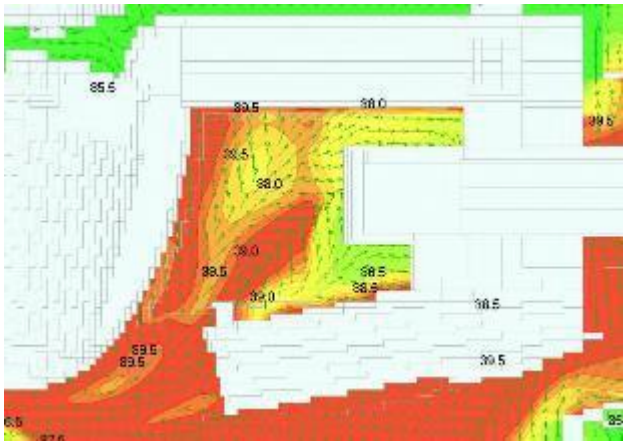
# Courtyard surrounded by the building

# Enclosed in rich greenery

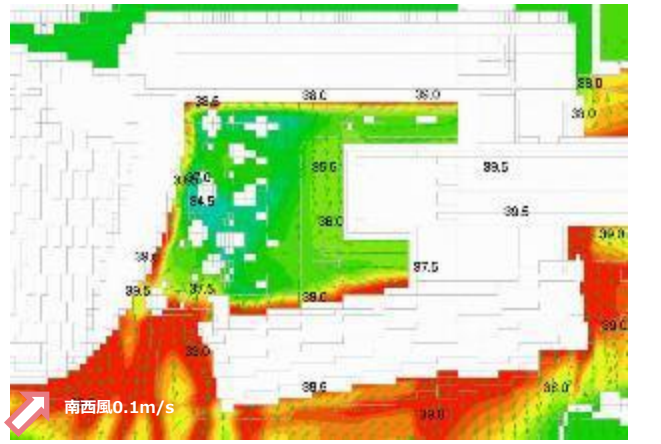
Two type of forest leading “Breeze” and “Sunlight“

# Planting with tall trees

- Reduction reflection from the ground with the shade.
- Reducing the heat environment of the courtyard by lowering the surface ground temperature.
- Lower the air temperature from the outside to the classroom in the summer



<In the case of tiles>




<In the case of lawn and trees>

# High comfort classroom

A classroom that feels warm, making use of wooden beams

Bright classroom with both north and south Daylighting using gradient roof

# Multipurpose room utilizing wooden beams

Facing the “Breezing” Forest, a place surrounded by greenery

# Utilizing the materials of the local area of Mizunami

## Tiles

Produced at the factory in the city from the soil in the vicinity of Mizunami

## Hinoki plywood

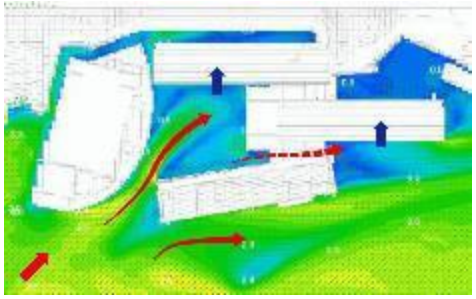
Utilizing plywood of Hinoki from Gifu Prefecture as a wall finish

## Cedar/ Hinoki Flooring

Use cedar from Gifu prefecture for consolidation flooring
Conference room only
Mizunami hinoki

# Spiral staircase with shellfish motif

# Arrangement of the building leading the wind



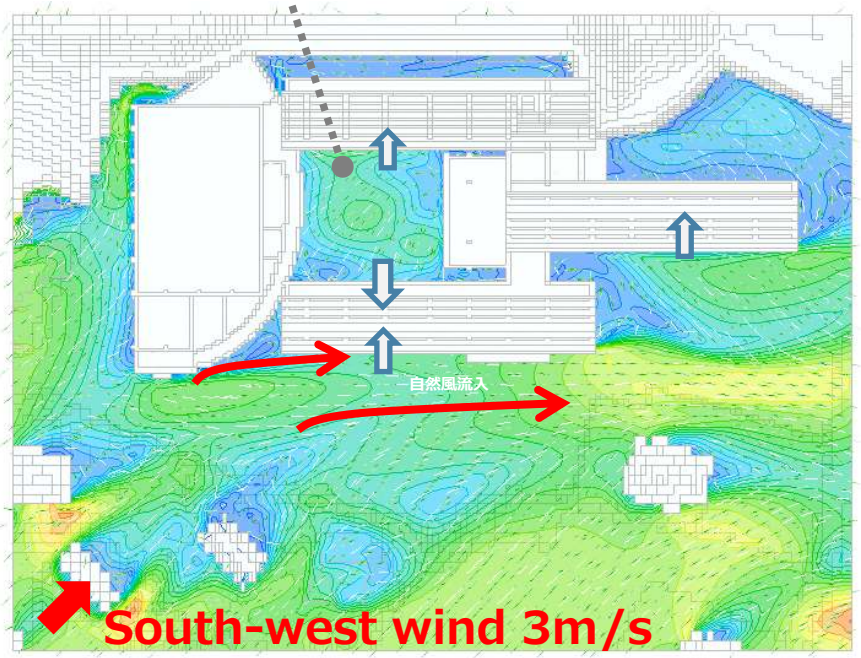
Wind to the courtyard goes through the whole school building

# Arrangement of the building leading the wind

- Based on the wind flow simulation, the building layout of the South wing was tilted by 10 degrees.
- We curved the outer wall of the indoor playground.

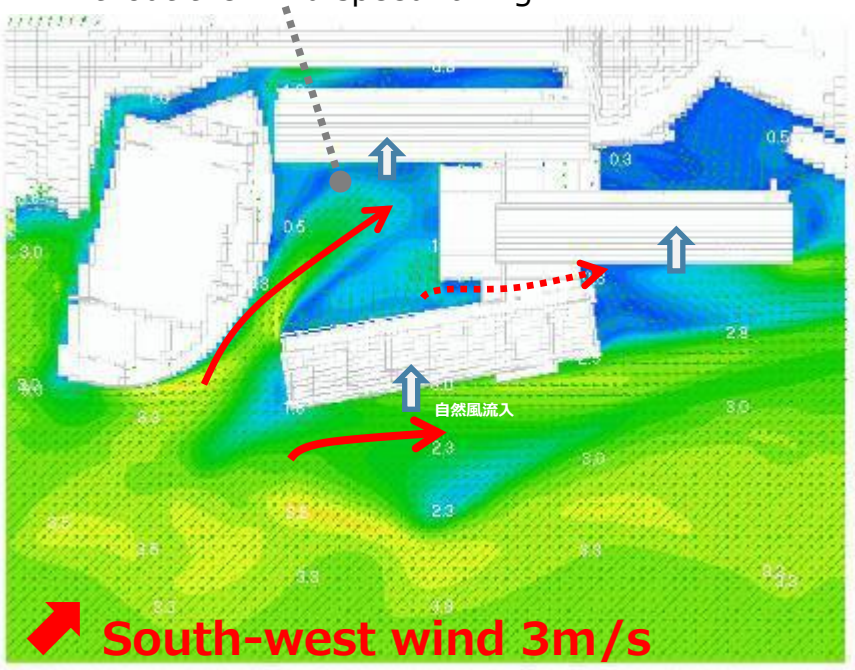

## No tilt

Since natural wind is not blown into the courtyard, wind speed is small and natural ventilation is not promoted.



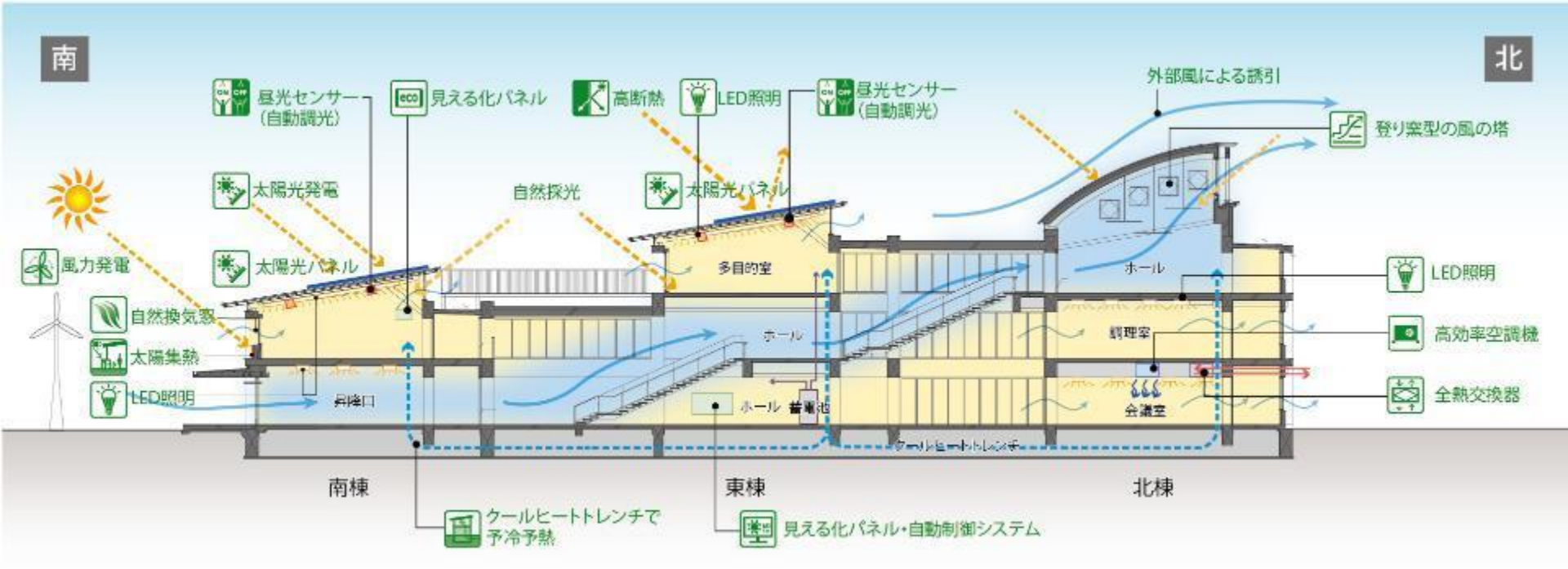

## Tilted by 10°

Wind flowing down the inner courtyard without the wind speed falling



# Cross section of the building and technology for ZEB

Natural ventilation system passing through the hall



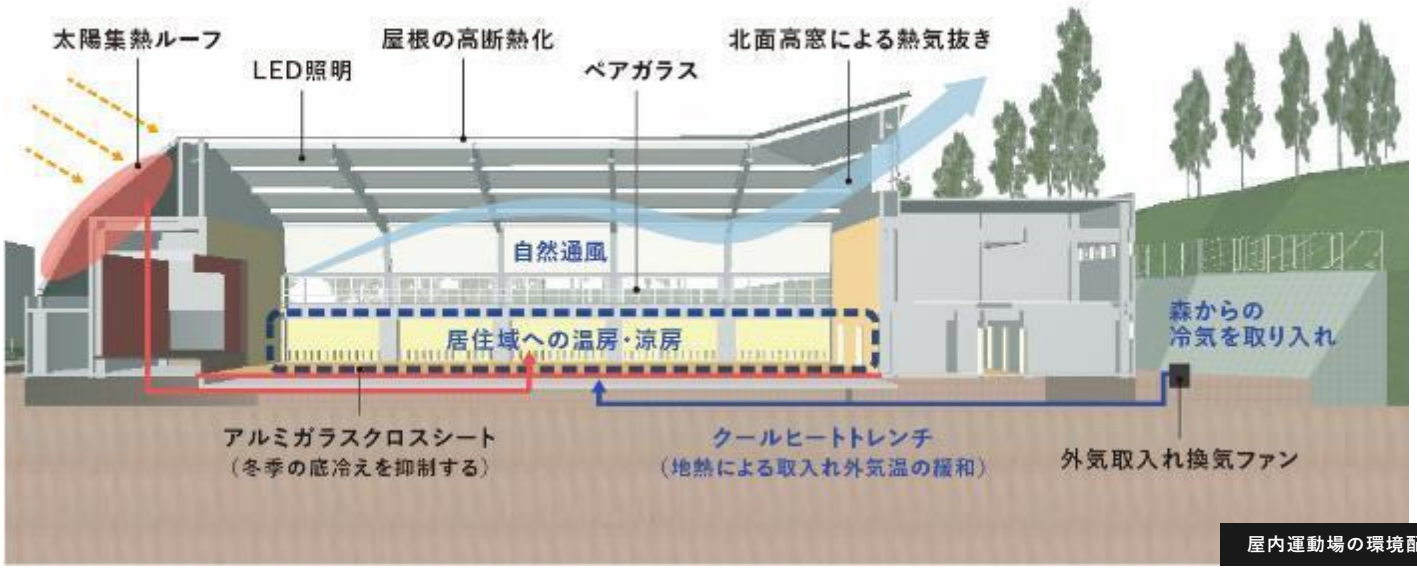
# Indoor playground like a whale shape




NIKKEN

# Solar collector roof

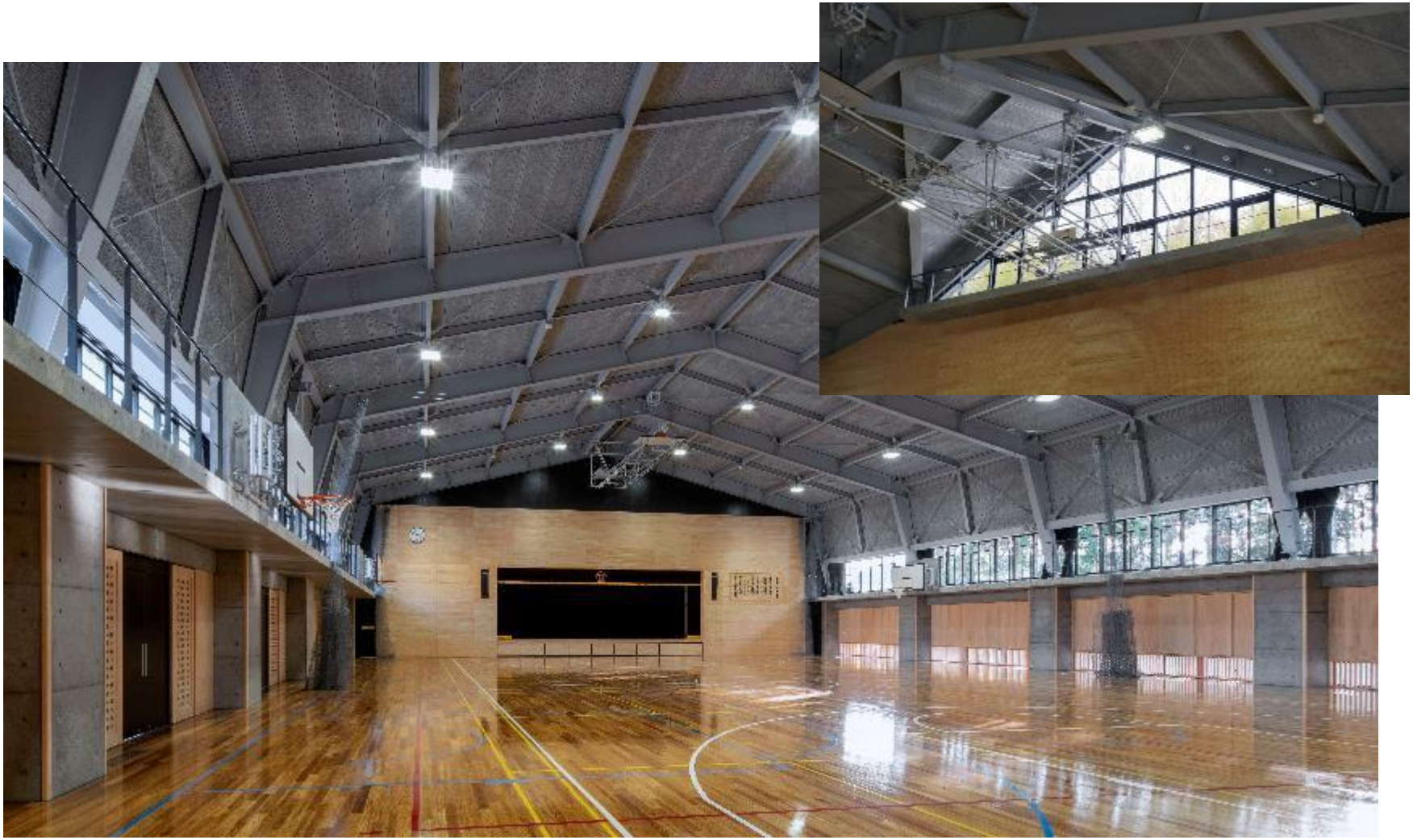
Collect solar energy and warm air. Send to arena.




屋内運動場の環境配慮イメージ

# Natural ventilation window

Perform efficient hot venting from high windows



# Light shelf

Guide light through the diffusion film into the classroom

Learn the changes in the sun altitude for each season on the scale of the science room