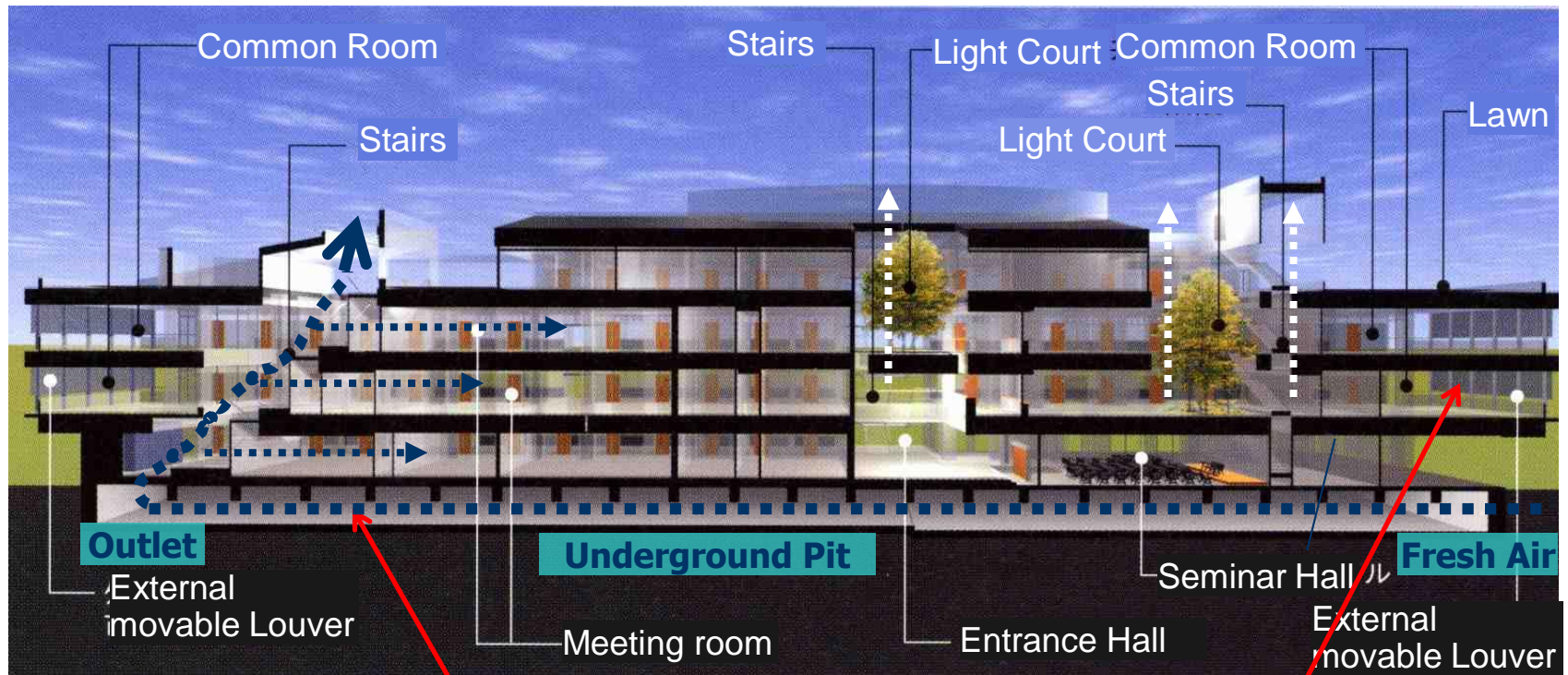


- Good Design Award in 2001
- Environmental Design Award
Grand prize in 2002

KEK Research Building No.4



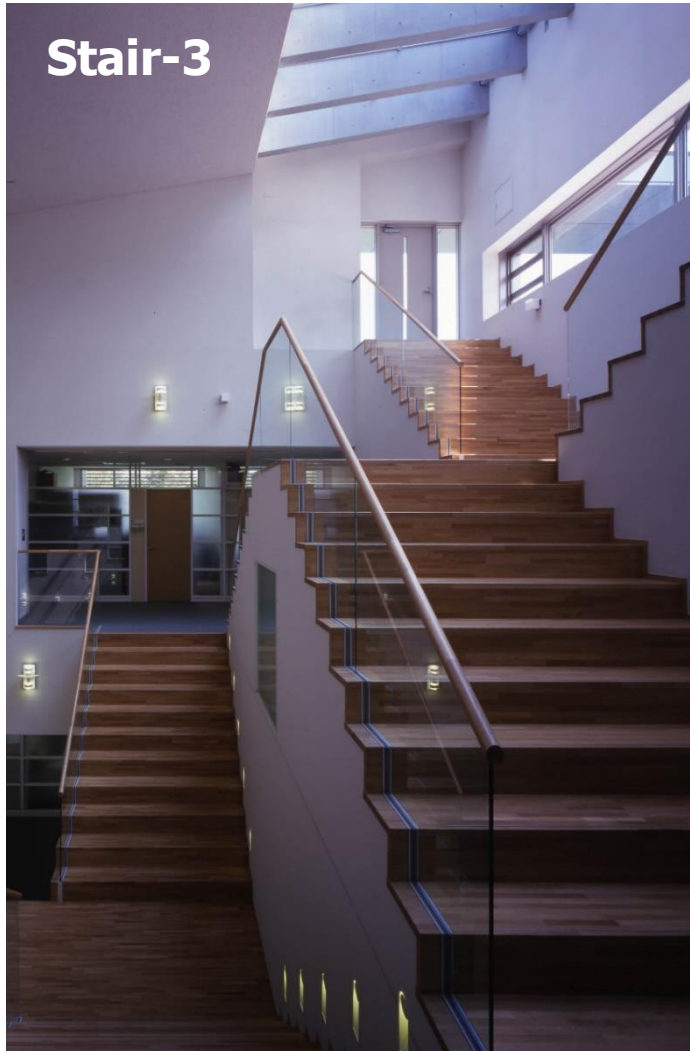
Cool (heat) trench

Mechanical louver system

Workshop on the space design for
ILC Project 2017.1019

4号館 4-Gokan

Stair-hall



Open stair hall:

“Promotion of exchange between upper and lower floors with wooden stairs”

Stair-2



Workshop on the space design for ILC
Project 2017.1019

4号館 4-Gokan

Passive Design



Motivation of the roof garden:

“Modest Restoration of the green land lost by the construction”

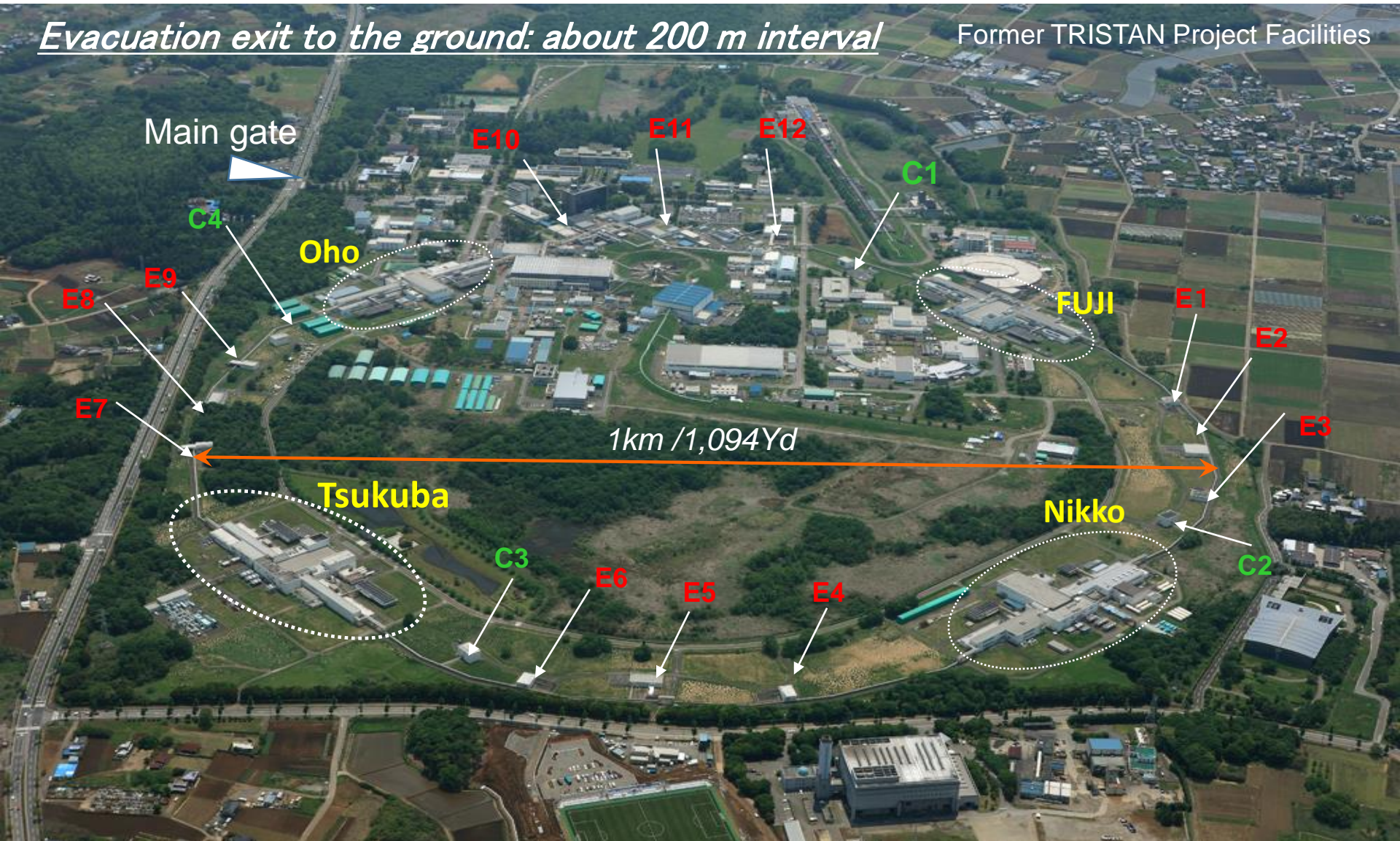
External movable louver:
“Comfortable environment by Solar shading system”



Asia's largest Accelerator: **KEKB** $e^- e^+$ Synchrotron

Evacuation exit to the ground: about 200 m interval

Former TRISTAN Project Facilities

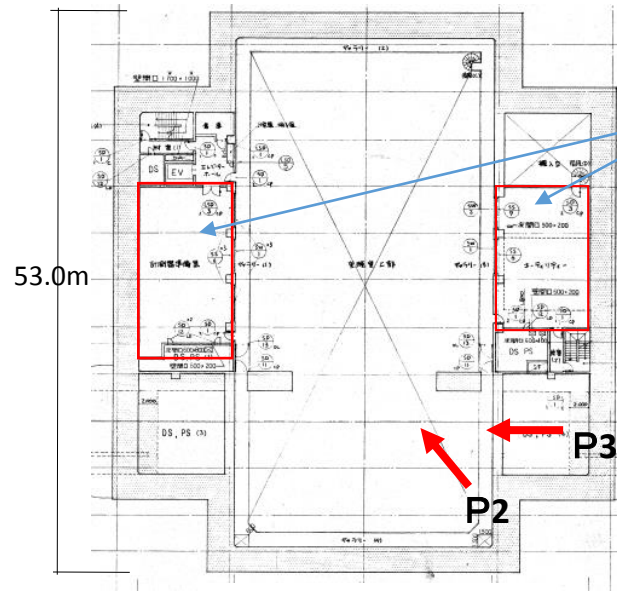


KEKB Tsukuba Experimental Hall

P1 Facade



Natural Light



Office with windowless

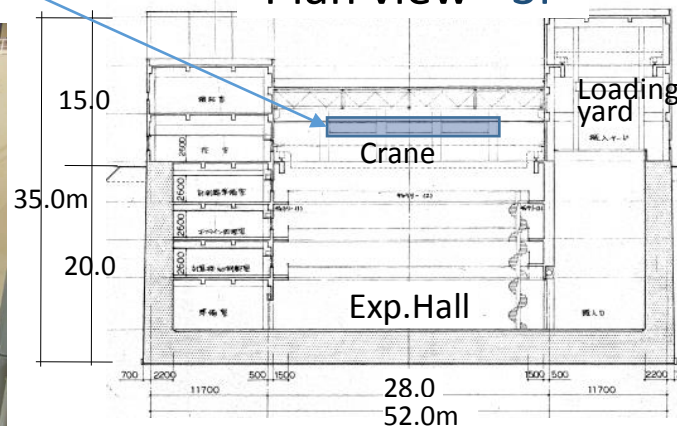
P3 Overview of Detector



P2 Interior view



Plan view -3F

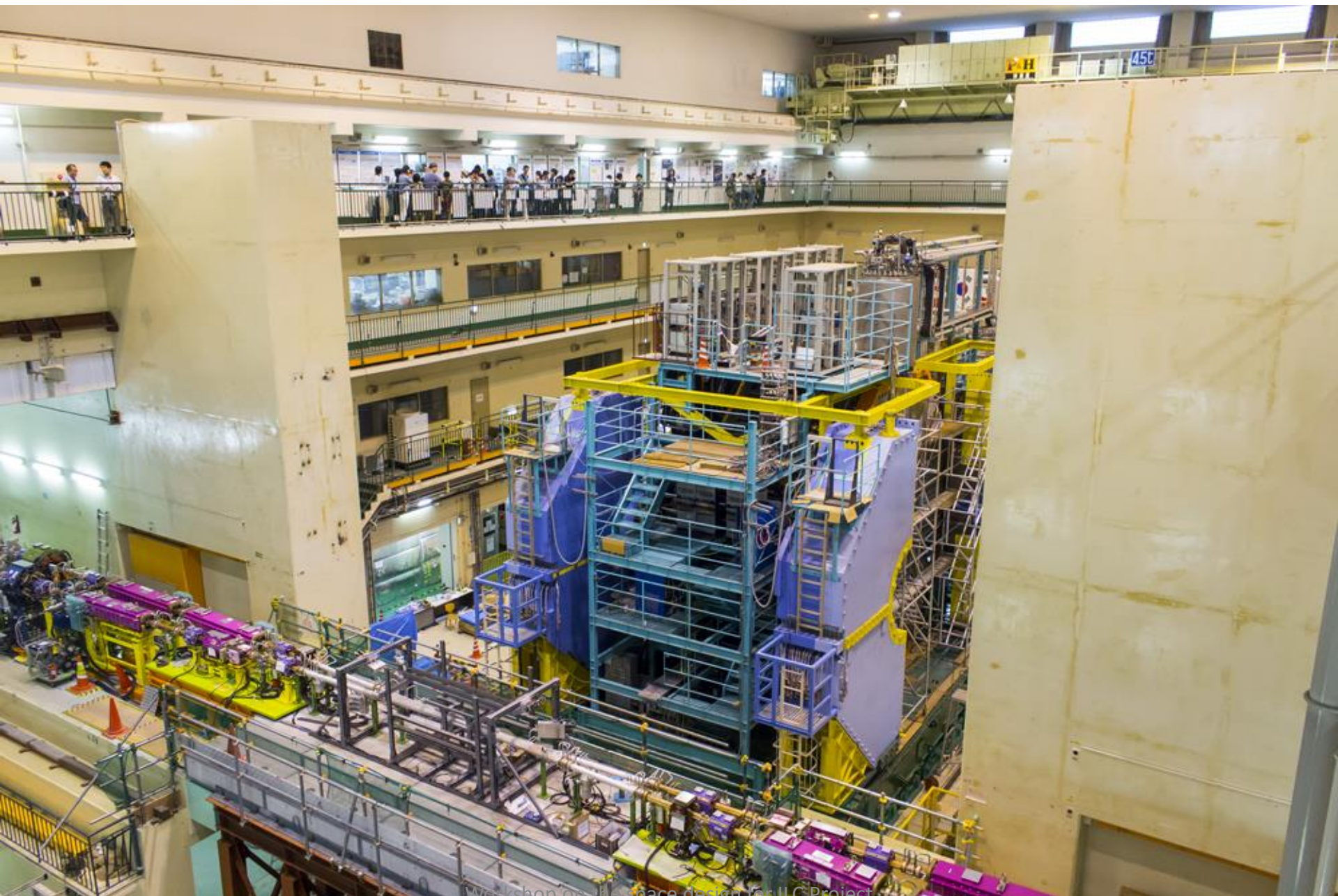


Architecture

Civil Engineering

Design based on Building Standards Law including underground

Sectional View



Characteristics of Underground Space

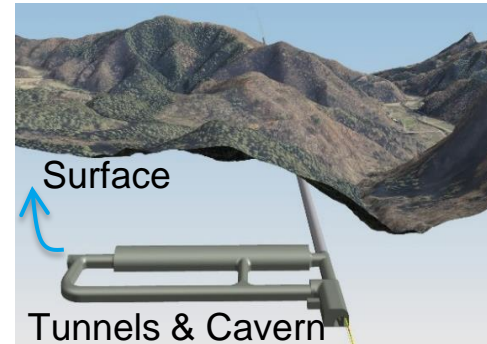
Difference depending on construction depth

Underground close to Surface -20m
KEKB

Deep Underground -50~400m
ILC

Architectural
Design Regulation

Open-cut &
Soil covering



Civil Engineering
Design Regulation

NATM excavating
for Tunneling

<ul style="list-style-type: none"> Stairs & EV Loading by Crane(max:20m) 	Accessibility	<ul style="list-style-type: none"> Access Tunnel @5 km(L=1km) Vertical Shaft 100m (EV)
<ul style="list-style-type: none"> Reinforced Concrete 	Structure	<ul style="list-style-type: none"> Rock mechanism
<ul style="list-style-type: none"> Introduction of natural light by high side window Securing biological clock rhythm 	Light Environment	<ul style="list-style-type: none"> Artificial Lighting Introduction of natural light using optical fiber(Rare Case?)
<ul style="list-style-type: none"> easy to escape to the surface by walking 	Refuge Issue	<ul style="list-style-type: none"> Evacuation by electric car? Introduction of evacuation EV?
<ul style="list-style-type: none"> Because near the ground entrance, the bid difference is not found in comparison with surface facilities. Even office space can be placed. 	Other Issues	<ul style="list-style-type: none"> Because distance to the surface is long, there are psychological uneasiness, feeling of pressure? Required? -WC, -Common space

Special Topics: Stress factors in polar spaces

Japan's **Showa Station** in Antarctica



Antarctic Specialties!!

Not sinking sun



White night



From my experience as a member of JARE

Summer cottage in Antarctica
“Hotel Fujiya” 富士屋ホテル

Japan Antarctica Research Expedition



- Accommodation capacity: 60 p.
- Meals: 4 times a day
7:00, 12:00, 17:00, 20:00

Problem:

- All night is bright because of **white night** Like Scandinavia
- *Is it good to be bright at night? or*
- *Is it better to be dark at night?*
- We procured and carried many **lighting equipment, curtains** and installed them on site.

Underground Space in Antarctica

Mizuho Base: Now



Trip to Mizuho Base 270km from Showa Station



Snow Entrance

