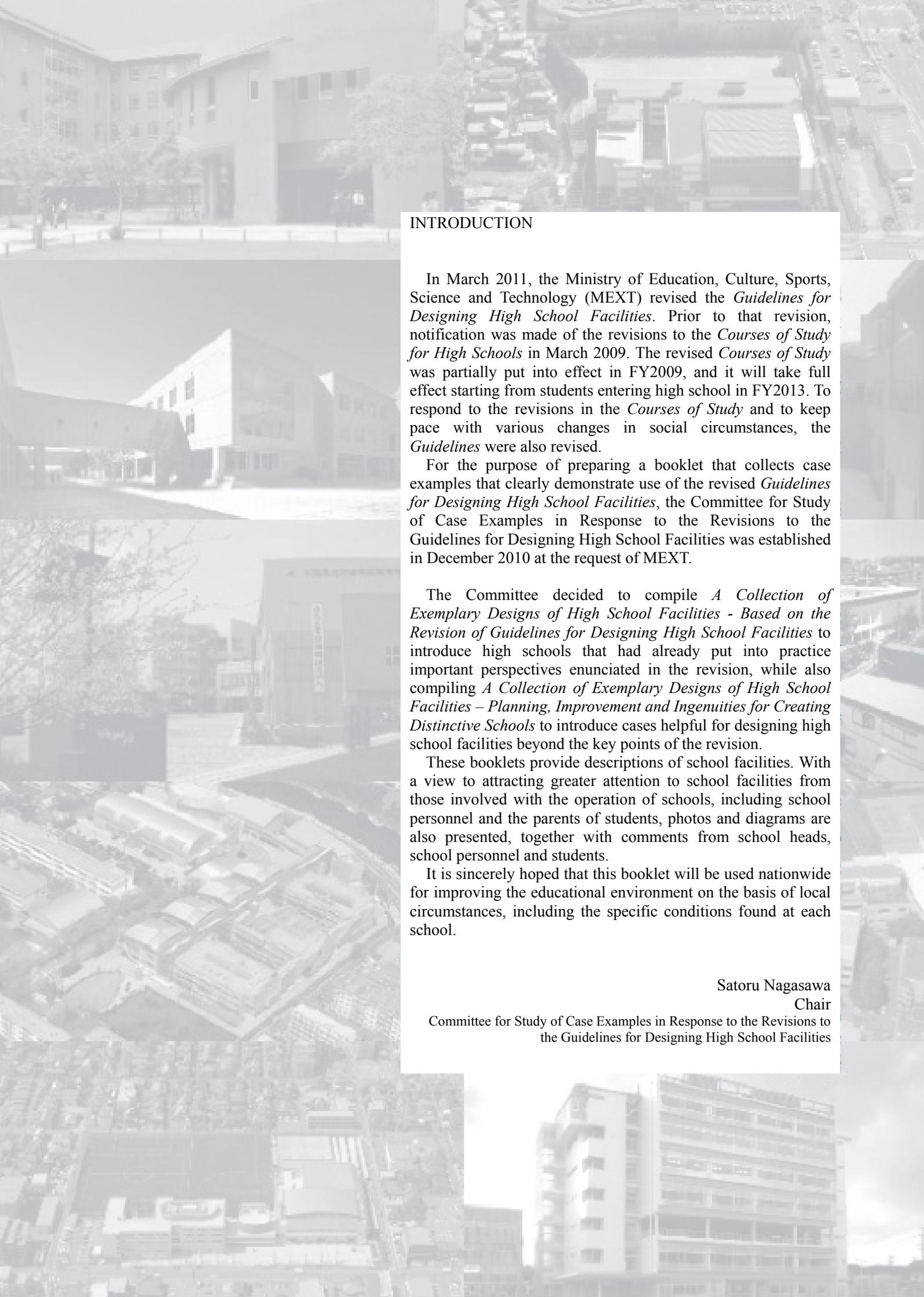


# A Collection of Exemplary Designs of High School Facilities

Based on the Revision of Guidelines  
for Designing High School Facilities  
May 2012



A project commissioned by the Ministry of Education, Culture, Sports, Science and Technology - Japan  
Committee for Study of Case Examples in Response to the Revisions to the Guidelines for Designing High School Facilities



## INTRODUCTION

In March 2011, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) revised the *Guidelines for Designing High School Facilities*. Prior to that revision, notification was made of the revisions to the *Courses of Study for High Schools* in March 2009. The revised *Courses of Study* was partially put into effect in FY2009, and it will take full effect starting from students entering high school in FY2013. To respond to the revisions in the *Courses of Study* and to keep pace with various changes in social circumstances, the *Guidelines* were also revised.

For the purpose of preparing a booklet that collects case examples that clearly demonstrate use of the revised *Guidelines for Designing High School Facilities*, the Committee for Study of Case Examples in Response to the Revisions to the Guidelines for Designing High School Facilities was established in December 2010 at the request of MEXT.

The Committee decided to compile *A Collection of Exemplary Designs of High School Facilities - Based on the Revision of Guidelines for Designing High School Facilities* to introduce high schools that had already put into practice important perspectives enunciated in the revision, while also compiling *A Collection of Exemplary Designs of High School Facilities - Planning, Improvement and Ingenuities for Creating Distinctive Schools* to introduce cases helpful for designing high school facilities beyond the key points of the revision.

These booklets provide descriptions of school facilities. With a view to attracting greater attention to school facilities from those involved with the operation of schools, including school personnel and the parents of students, photos and diagrams are also presented, together with comments from school heads, school personnel and students.

It is sincerely hoped that this booklet will be used nationwide for improving the educational environment on the basis of local circumstances, including the specific conditions found at each school.

Satoru Nagasawa  
Chair

Committee for Study of Case Examples in Response to the Revisions to  
the Guidelines for Designing High School Facilities

# A Collection of Exemplary Designs of High School Facilities

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May 2012

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# Revision of the Guidelines for Designing High School Facilities

## Background

The advancement rate to high school, which was about 42% at the start of the postwar high-school system (1947), has now reached 98%. High schools have become educational institutions for almost everyone. With the rising advancement rate, the abilities/aptitudes, interests and career choices of students are becoming increasingly diverse, which requires high-school education that develops the individuality of each student.

To this purpose, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) are promoting the establishment of unified junior and senior high schools, integrated courses and credit-based system high schools as well as distinctive courses to create high schools with more character to develop the individuality of each student, while promoting high school education reform to enable varied curriculums through expansion of the scope of granting accreditation for learning results outside the school.

In March 2009, the *Courses of Study for High Schools* was revised with the aim of helping children to develop their “zest for living.”

The revision was implemented on the basis of the education philosophy that was clearly defined in the Basic Act on Education when it was amended for the first time in sixty years. Three basic ideas underlie the revised Courses of Study: 1) developing student’s “zest for living,” 2) emphasizing the balance between the acquisition of knowledge/skills and the development of thought/judgment/expressive power, and 3) nurturing spiritual wealth and maintaining the good health of each student through improvements in moral and physical education. Specifically, the educational content has been improved in language activities and in the education of math and science.

To keep pace with the reform of high school education, the revision of *the Courses of Study for High Schools*, promotion of career/vocational education, and also in view of social changes as well as environmental issues including global warming, MEXT started a review of the *Guidelines for Designing High School Facilities* in June 2010. The Guidelines were revised in March 2011.

## Guidelines for Designing Educational Facilities

*The Guidelines for Designing Educational Facilities* provide points to consider in planning and designing school facilities such that they ensure the functionality essential for facilitating school education

## An Outline of the Revisions

### ■ In response to increasing individuality and diversity of students

#### 1. Improving spaces for developing independence

- Designing spaces to encourage self-motivated learning and for varied living scenes. Improving spaces to facilitate daily communication

#### 2. Maintaining and improving the learning/living spaces

- Considering room temperature and sound to ensure good environmental conditions

#### 3. Designing effective and efficient facilities

- Considering effective and efficient facility design including response to changes in the number of students and use for multiple subject areas based on the understanding of the different points in planning and design depending on the school, and the education content in light of the diversification of needs

### ■ In response to the revision of the *Courses of Study*

#### 1. Improving science and mathematics education

- Designing school facilities taking into account the integrated use of rooms for science, audio-visual classrooms and the library room for satisfying the needs of diverse educational methods
- Designing rooms for science to facilitate the use of various experimental instruments/IT devices as well as to facilitate demonstrative experiments

#### 2. Improving information education

- Designing rooms and spaces considering the introduction of information equipment such as computers and a school network

#### 3. Improving language activities

- Planning facilities considering the integrated use of classrooms, special classrooms, library rooms, lecture rooms and seminar rooms for varied language activities such as presentation, discussion and report writing.

#### 4. Improving the environment for physical exercise

- Designing school facilities such that students can enjoy sports regularly, which include sufficient ventilation and natural lighting in indoor sports facilities and appropriate rest/changing/shower rooms and other such facilities according to the usage situation.

### ■ In response to changes in social circumstances

#### 1. Improving career/vocational education

- Planning introduction and utilization of diverse human resources from local organizations and private firms for educational activities. Considering cooperation with universities, other high schools and junior high schools

#### 2. Promoting special needs education

- Planning facilities with consideration to the possibility of the enrollment of students with disabilities

#### 3. Environmental considerations

- Designing school facilities to be built in an environmentally friendly way and with consideration for reduction in environmental effects, so that the facilities themselves can be used as practical resources for teaching. Improving the school environment through efforts toward reducing GHG emissions

# Key Points of Revision of the Guidelines for Designing High School Facilities introduced by this Collection of Exemplary Designs

	Miyagiken Shiroishi Senior High School	Akita Prefectural Yokote Seiryō Gakuin Junior and Senior High School	Fukushima Prefectural AIZU GAKUHO Junior and Senior High School	Chiba Prefectural Inba Meisei Senior High School	Tokyo Metropolitan OEDO Senior High School	Yokosuka Municipal Yokosuka Sogo High School	Caritas Junior & Senior High School	Hokutsu High School	Johanan Shizuoka Junior and Senior High School	Ritsumeikan Moriyama Junior & Senior High School
Page	4	8	12	16	20	24	28	32	36	40
Improving spaces for developing independence	●	●	●	●	●	●	●	●	●	
Maintaining and improving the learning/living spaces			●	●		●	●			
Designing effective and efficient facilities	●		●							
Improving science and mathematics education							●	●		●
Improving information education				●		●			●	●
Improving language activities					●					●
Improving the environment for physical exercise	●							●		
Improving career/vocational education	●	●			●	●			●	●
Promoting special needs education					●					
Environmental considerations		●								

## [How to use the case reports]

Basic data on the high school (e.g. the scale of the facilities and the number of students)

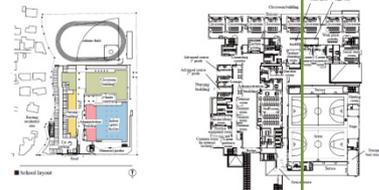
### 1 Shiroishi, Miyagi Prefecture Miyagiken Shiroishi Senior High School

- Senior General course (nursing course)
- Students: 210
- Course: Nursing (nursing)
- Course: Information (Information, Miyagi Prefecture)
- Size of the work: New construction
- Site area: 13.1 (ha)
- Total floor area: 14,137 (m<sup>2</sup>)
- Completion: June, 2019

Designing rooms to meet the characteristics of the general course and nursing course. And facilities to meet the characteristics of an advanced nursing course. The school building of the career Miyagiken Shiroishi Senior High School was newly constructed in response to the integration of the Shiroishi Shiroishi Senior High School and Shiroishi Senior High School in FY2019. The new school building, which houses a general course and a nursing course including an advanced course, is designed with focus on the space layout based on the characteristics of the two courses.



Aerial view of the school building. Though built in a limited space, the buildings are laid out in a strategic manner to make full use of the available space.



Floor plan diagram of the school building.

- Key points adopted in the plan from the revised guidelines:
1. Improving spaces for developing independence
  2. Designing effective and efficient facilities
  3. Improving the environment for physical exercise
  4. Improving career/vocational education

Figures and photos to briefly explain key points of the plan that were taken from the revised guidelines for facilities at high schools

**1. Improving spaces for developing independence**  
Places for self-directed learning everywhere in the school

1. Open (left) and closed (right) learning spaces. Some of the desks in the open learning space are arranged along a light wall. A part of the closed learning space is a glass-walled study room for completion in the room.

2. Cooperation corners between classrooms are used for chatting, writing, reading and for lunch. Arranged in places ready accessible from classrooms, these corners are used also for other purposes and.

3. The library has rooms for self-study as addition to reading desks.

**Teacher's Comment**

**Providing many spaces for learning at places easily accessible for students**

As the general course has introduced a curriculum with emphasis on proceeding to higher education, the new school building is designed to create an environment to support students' learning by furnishing it with a library before the entrance to the building. The library is equipped with desks for reading. Not only for students use the place for study as well as reading books.

The 2<sup>nd</sup> to 4<sup>th</sup> floors of the general course are equipped with open and closed learning spaces. Open learning spaces are in front of the lesson practice room and preparation rooms of individual subject rooms. In addition, one table is provided in a preparation room, question that has been asked.

Closed learning spaces are used by many students who want to study in the morning, during their spare time and when it is noisy in classrooms such as other school.

Students are also studying in the career guidance room, cooperative corner or at living desk in front of the classrooms.

Providing a large number of learning spaces near the place where students study on a daily basis naturally spreads the habit of self-only learning students (Photos 1 to 3).

A Collection of Exemplary Designs of High School Facilities — Based on the Revision of Guidelines for Designing High School Facilities 5

Key points of the plan that were taken from the revised guidelines for facilities at high schools

Comments by the principal, school personnel, students, the architects and committees about the facilities

# 1

## Shiroishi, Miyagi Prefecture

### Miyagiken Shiroishi Senior High School

- Course: General course·Nursing course
- Classes: 21
- Students: 839
- Owner: Miyagi Prefecture
- Location: Hachiman-cho, Shiroishi, Miyagi Prefecture
- Type of the work: New construction
- Site area: 18,319m<sup>2</sup>
- Total floor area: 16,167m<sup>2</sup>
- Completion: Feb. 2010

### Designing rooms to meet the characteristics of the general course and nursing course. And facilities to meet the characteristics of an advanced nursing course

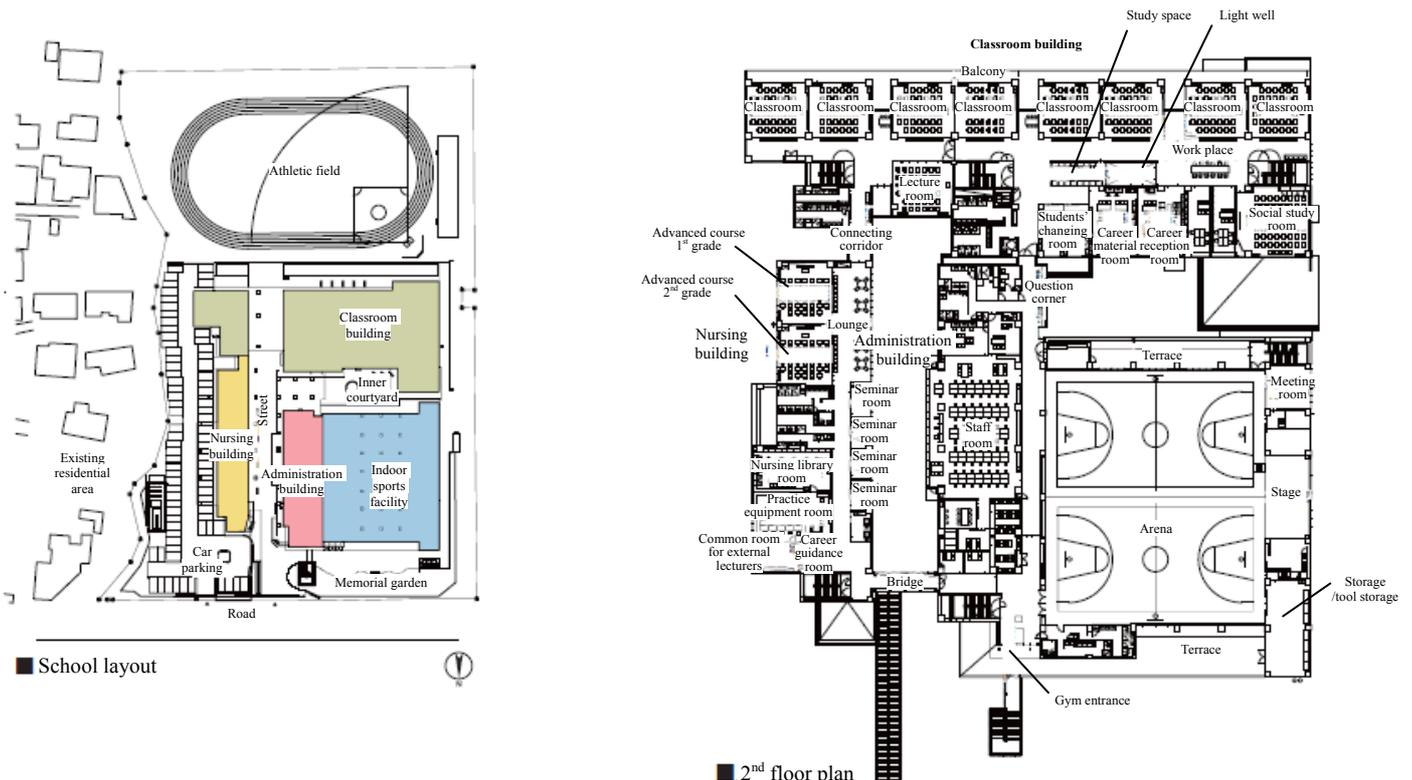
The school building of the current Miyagiken Shiroishi Senior High School was newly constructed in response to the integration of the Miyagiken Shiroishi Senior High School and Shiroishi Girls' High School in FY2010. The new school building, which houses a general course and a nursing course including an advanced course, is designed with focus on the space layout based on the characteristics of the two courses.



A birds-eye view of the school building. Though built in a limited space, the buildings are built at an adequate distance from each other and compactly arranged.

### Key points adopted in the plan from the revised guidelines

1. Improving spaces for developing independence
2. Designing effective and efficient facilities
3. Improving the environment for physical exercise
4. Improving career/vocational education



## 1. Improving spaces for developing independence Places for self-directed learning everywhere in the school



1 Open (left) and closed (right) learning spaces. Some of the desks in the open learning space are arranged along a light well. A part of the closed learning space is glass-walled to reduce feelings of crampedness in the room.



2 Conversation corners between classrooms are used for chatting among friends and for lunch. Arranged in places easily accessible from classrooms, these corners are used also for short interviews and consultation with students.



3 The library has carrels for self-study in addition to reading desks.

### Teacher's Comment

#### Providing many spaces for learning at places easily accessible for students

As the general course has introduced a curriculum with emphasis on proceeding to higher education, the new school building is designed to create an environment to support students' studying for themselves.

The library before the entrance is accessible to students of any grade and equipped with desks for reading. Not a few students use this place for study as well as reading books.

The 2<sup>nd</sup> to 4<sup>th</sup> floors of the general course are equipped with open and closed learning spaces. Open learning spaces are in front of the career guidance room and preparation rooms of individual subject areas, so students can ask a teacher in a preparation room questions that they may have.

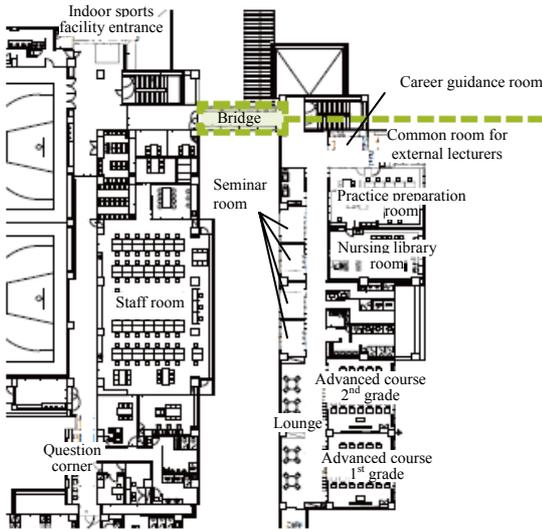
Closed learning spaces are used by many students who want to study in the morning, during their spare time and when it is noisy in classrooms such as after school.

Students are also studying in the career guidance room, conversation corner or at a long desk in front of the staff room.

Providing a large number of learning spaces near the place where students stop on a daily basis naturally spreads the habit of self-study among students (Photos 1 to 3.)

# 1 Miyagiken Shiroishi Senior High School

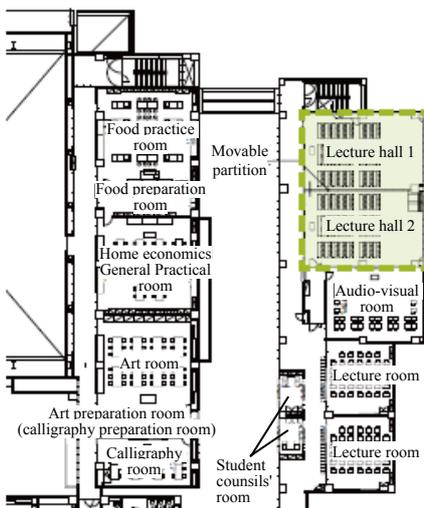
## 2. Designing effective and efficient facilities New school building designed for different teaching environments of the high-school course and the advanced course



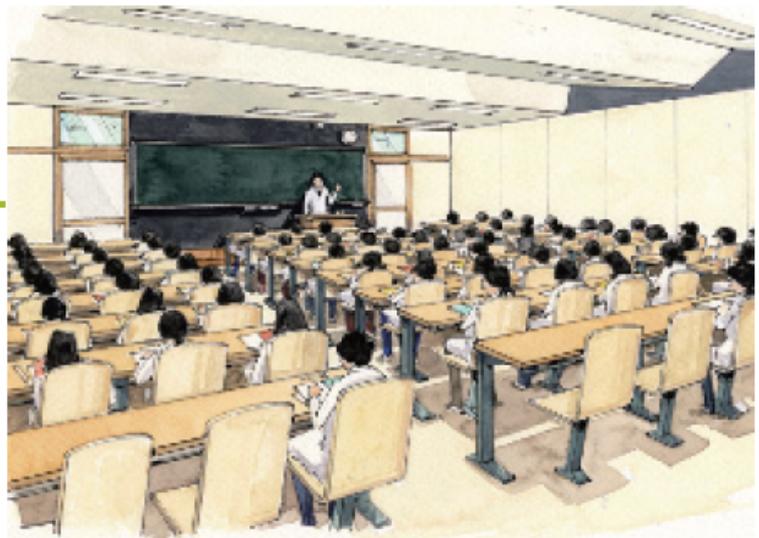
4 2<sup>nd</sup> floor plan



5 The bridge creates an efficient circulation flow connecting the administration building and the nursing building



6 3<sup>rd</sup> floor plan



7 Lecture hall shared by the nursing course and the general course

### Principal's Comment

#### Addressing the impact of noise due to different timetables

Shiroishi Senior High School consists of a credit-based system general course focused on advancing to higher education and a five-year nursing course including an advanced course. One hour of the high school program of the nursing course is 45 minutes but one hour of the advanced course is 100 minutes. Therefore, sounds of chimes, footsteps and chattering of students moving between classes could break the concentration of other students who are still in class.

The new school building consists of a general course high school building, a nursing course building, an administration building and an indoor sports facility. Adequate distance between the buildings has an effect to reduce the impact of noise. However, because teachers of the general course sometimes give lessons in the nursing course building, the administration building and the nursing course building are connected by a bridge to ensure an efficient circulation flow and thereby enhance concentration on learning.

### <Architect's Comment>

© The four buildings of the new school are concentrated in a narrow site between a national road and a residential area. An inner courtyard and a street running through the complex from north to south not only ensure natural lighting and ventilation but also create an adequate distance between the buildings. For noise control, a separate entrance is provided for the advanced course students who often receive practical training outside the school, and doors with noise-blocking effect are introduced to necessary places such as the connecting corridor.

(Designed by SEKI KUKAN SEKKEI)

### 3. Improving the environment for physical exercise

An arena and an adjacent meeting room can be used in an integrated manner.



8 White boards are hung in the meeting room and in the arena to facilitate meeting.

### 4. Improving career/vocational education

Basic nursing practice room for both practice and lecture



9 The basic nursing practice room integrates a lecture space and a practice space. The lecture space has tiers so that students can have a better look at the handling by teachers/external lecturers.

### Teacher's Comment

#### Enabling prompt discussion of training plans and game strategies

There is a meeting room adjacent to the arena. A whiteboard is hung both in and outside the room. Giving instruction in class and extracurricular activities not only orally but also visually using written characters and drawings helps us in conveying our intention to students (Figure 8).

#### Students enhance their understanding by listening well and seeing well.

Practices of nursing course can be divided into those in the school and those in Katta General Hospital in the city.

Rooms used for practice in the school include the basic nursing practice room, a medical implements sampling room and an adult/maternal/child care practice room in the nursing course building. Among these rooms, the basic nursing practice room is distinctive in that it

integrates a lecture space and a practice space.

The room is arranged such that students listen to teachers/external lecturers, take notes and then practice the treatment demonstrated before them without moving to a different room (Photo 9)

# 2

## Yokote, Akita Prefecture

### Akita Prefectural Yokote Seiryō Gakuin Junior and Senior High School

- Course: Unified junior and senior high schools / integrated technology course
- Classes: 7 (junior-high school) and 15 (high-school)
- Students: 240 (junior high), 583 (high school)
- Owner: Akita Prefecture
- Location: 147-1 Osawa-aza-maeda, Yokote, Akita Prefecture
- Type of the work: reconstruction
- Site area: 83,980m<sup>2</sup>
- Total floor area: 24,457m<sup>2</sup>
- Completion: Nov. 2004

#### Space for varied activities adapted to the climate and environmental conditions

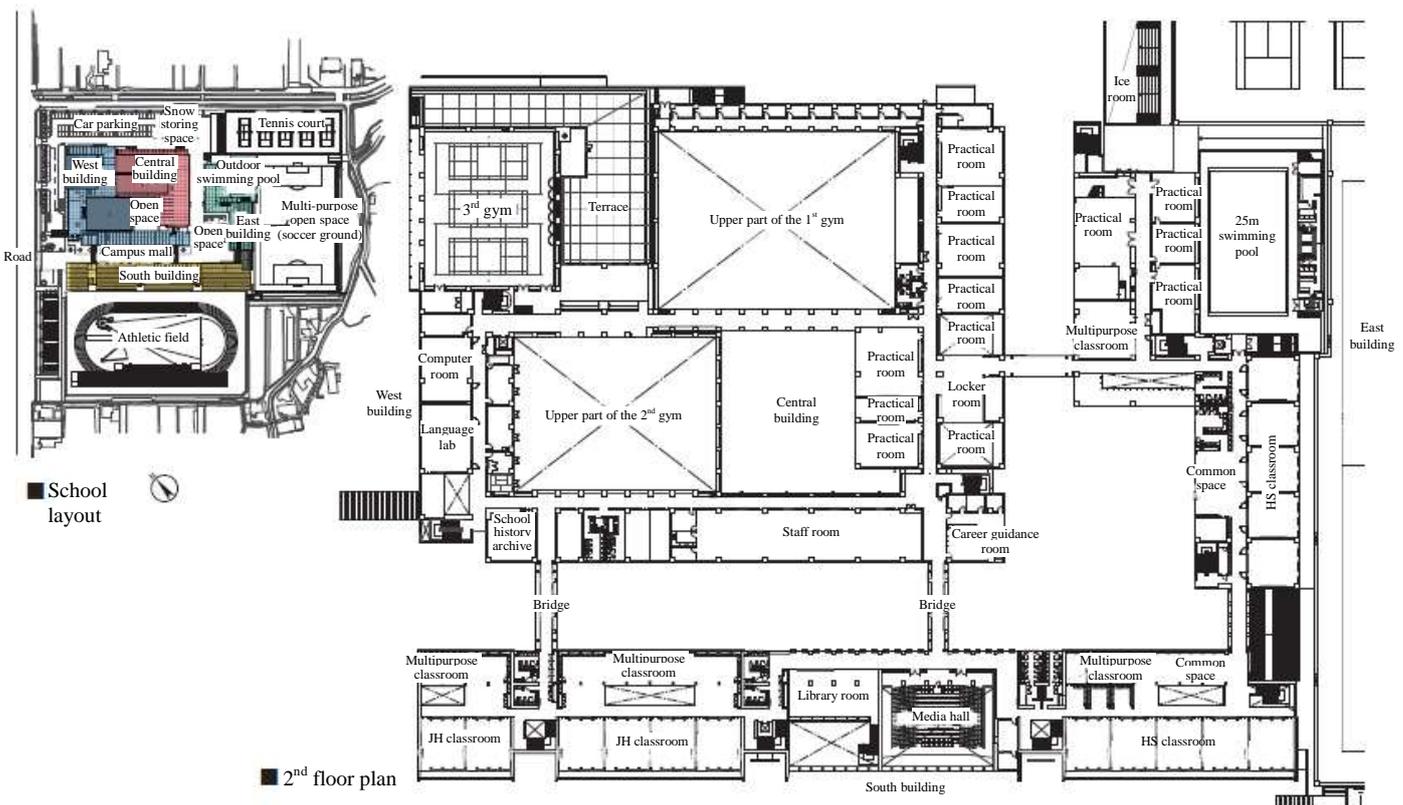
A warm space is created encompassing a variety of activities while adapting to the local climate and environmental conditions. The school utilizes its facilities through ingenuities to “make visible” and “demonstrate.” Systems such as snow air-conditioning are also used for environmental learning.



Bridge connecting the campus mall and the 2<sup>nd</sup> floor (seen from the inner courtyard)

#### Key points adopted in the plan from the revised guidelines

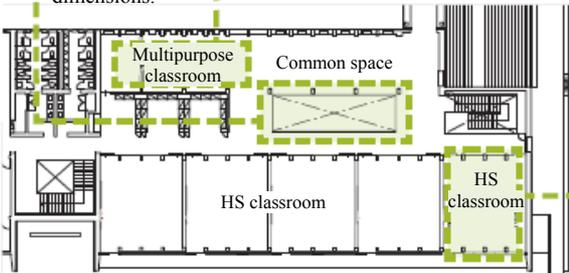
1. Improving spaces for developing independence
2. Improving career/vocational education
3. Environmental considerations



## 1. Improving spaces for developing independence Warm space encompassing diverse activities



1 East side of the south building 2<sup>nd</sup> floor. Students can learn in a space full of the warmth of wood under a continuing frame made of glued laminated timber with large dimensions.



3 Floor plan of classrooms and a common space on the east side of the south building 2<sup>nd</sup> floor



2 A multipurpose classroom used by high-school 1<sup>st</sup> graders on the east side of the south building. Students can use the room for lunch and conversation as well.



4 A classroom on the 2<sup>nd</sup> floor of the south building

### Principal's Comment

#### Learning while feeling the warmth of wood

The school building is composed of L-shaped south/east buildings housing classrooms and west/central buildings where gymnasiums, practical rooms and administrative rooms are arranged. Because traffic between buildings is difficult in winter due to snow cover, the buildings are connected by a bridge and the center of school life is planned on the 2<sup>nd</sup> floor. The 2<sup>nd</sup> floor of the south building has a beautiful 150m-long frame made of glued laminated timber

with large dimension. Wood is used lavishly also on the lattice walls of our gyms and library and louvers on corridor ceilings. Students can learn in the peaceful space full of the warmth of wood (Photos 1, 2 and 4).

#### Common space enabling varied teaching

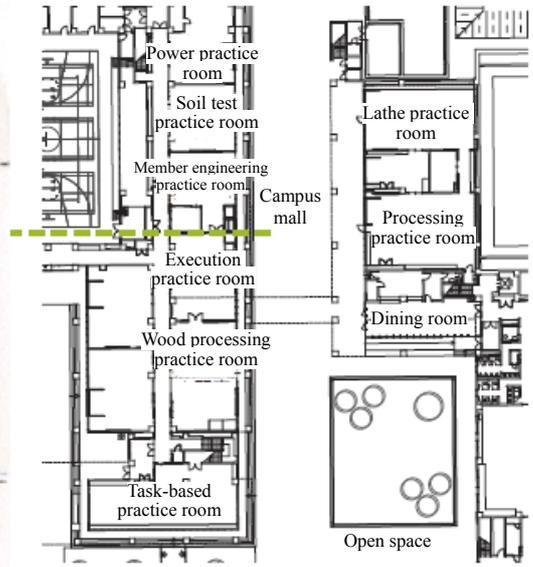
Common spaces (multipurpose spaces/classrooms) for small-group learning are provided before classrooms. They can be used for team teaching and teaching according to the level of proficiency by

dividing the students into two groups in the middle of class. It is very convenient that they enable varied teaching styles (Photo 2). Both the junior-high and high schools basically use the same facilities. They jointly conduct school events and some extra-curricular activities to provide exchange opportunities across the school (Photo 8).

2. Improving career/vocational education  
Utilizing facilities through devices to make visible and demonstrate



5 Practical rooms are arranged along the campus mall so that junior-high students can see the practice of high-school students. This is a novelty to help students in their career choice.



6 Practical rooms are arranged along the campus mall.



7 A gallery exhibiting activity results is arranged along a corridor protected from snow. This is another device for demonstration.



8 Being accessible to both junior-high and high school students, the library reading room of the south building is also a space for exchange.

Teacher's Comment

**Environmentally symbiotic campus adapted to the local climate**

A snow air-conditioning system and solar chimney to facilitate natural ventilation are introduced to realize an environmentally symbiotic campus adapted to the local climate. These facilities are also used for environmental learning to deepen students' understanding of and interest in the global environment and new energy based on the principle of "a school that places importance on learning about the

global environment." Our ice room can store snow of about 900t (1,800m<sup>3</sup>) serving about 63% of the school's air-conditioning area (Photos 9 and 11, Figure 10).

**An environment where diverse activities can be seen and inspire each other**

Because the school has many elective engineering courses, its facilities are designed to help in career choice by students. A campus mall and an inner courtyard

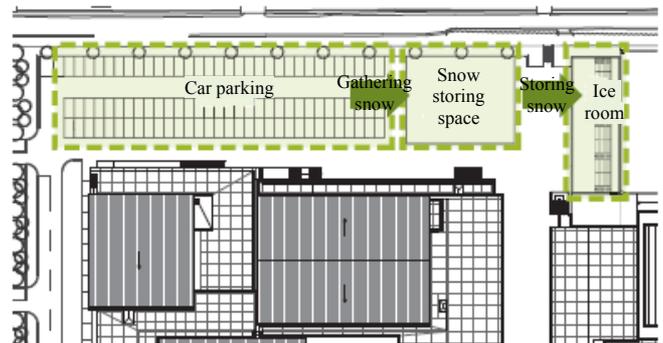
are arranged around practical rooms so that students can see technical practice through large glass windows. There is also an information gallery along a corridor protected from snow to show students' activity results. These arrangements makes diverse activities visible and create an environment where students inspire each other (Photos 5 and 7, Figure 6).

### 3. Environmental considerations

#### Adapting to the local climate to provide an effective tool for environmental learning



9 Exterior of the ice room for snow air-conditioning (front side). Storing snow.



10 Layout of the ice room. Snow fallen on the car parking area is directly packed into the ice room.



11 The snow air-conditioning system is also used as a tool for environmental learning.



12 What look like chimneys are solar chimneys to facilitate natural ventilation.



13 Performance of photovoltaic generation is displayed on a monitor to increase interest in the environment.

#### <Architect's Comment>

- ◎ In order to incorporate opinions of citizens of Akita Prefecture, a workshop was held with about 50 participants mostly from Yokote City simultaneously with the basic design as the first attempt of this kind in the prefecture. At the workshop, it was decided to develop a plan based on the three design themes of; (i) create an urban environment, (ii) encourage diverse activities, and (iii) respond to the local climate.
- ◎ In the snow air-conditioning system introduced by the school, snow on the car parking area is directly packed into the ice room, which reduces snow removing cost. In addition, using the

stored snow for cooling in summer greatly reduces the environmental burden. The ice room that also serves as a retaining wall was constructed using the difference of elevation (about 4.3m) between the car parking area and the tennis court. The roof of the ice house is used for tennis spectators' seats (Photos 9 and 11, Figure 10).

(designed by NIHON SEKKEI, Inc.)

# 3

Aizuwakamatsu, Fukushima Prefecture

## Fukushima Prefectural AIZU GAKUHO Junior and Senior High School

- Course: Unified junior and senior high schools /integrated course
- Classes: 9 (junior-high school) and 18 (high-school)
- Students: 270 (junior high), 711 (high school)
- Owner: Fukushima Prefecture
- Location: 1-1 Aza-Yahata, Oaza-Yahata, Ikkimachi, Aizuwakamatsu, Fukushima Prefecture
- Type of the work: New construction
- Site area: 86,835m<sup>2</sup>
- Total floor area: 21,954m<sup>2</sup>
- Completion: Aug. 2007

### Effective arrangement of large/small classrooms and self-study spaces to encourage independence of students

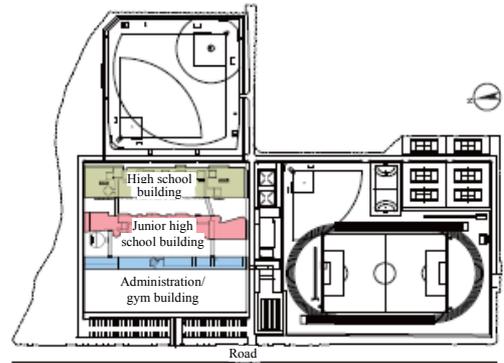
Classrooms tailored to the number of students and teaching content, and places for students' activities are placed in an integrated manner



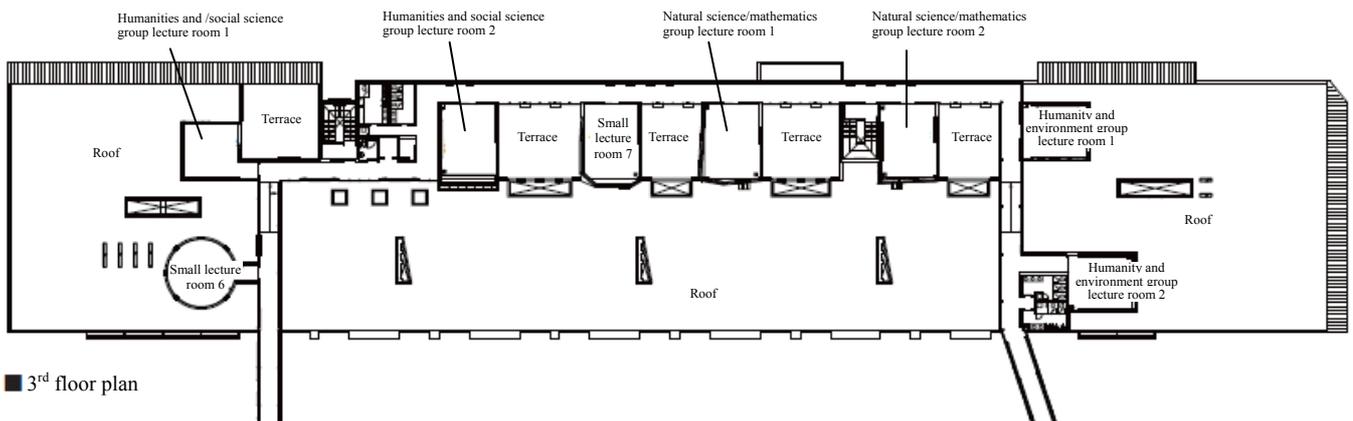
Inner courtyard seen from the bridge connecting the junior and senior high school buildings

### Key points adopted in the plan from the revised guidelines

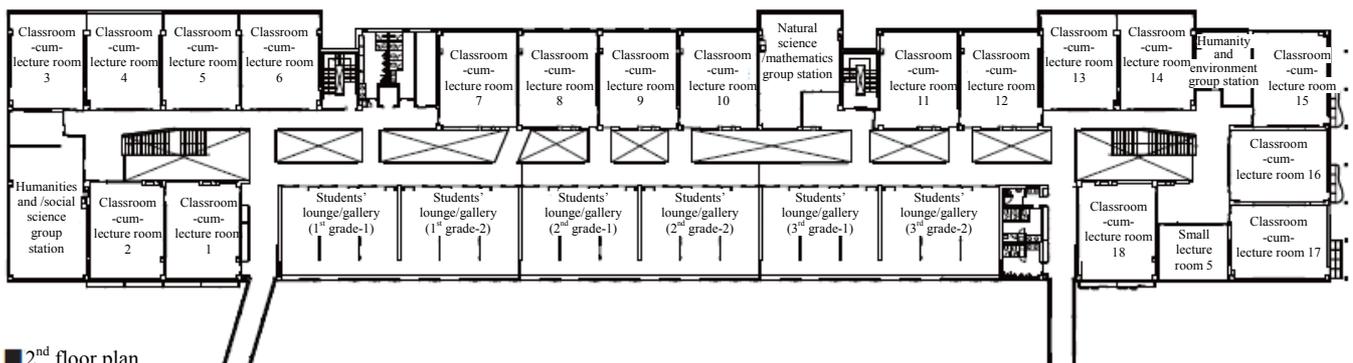
1. Improving spaces for developing independence
2. Maintaining and improving the learning/living spaces
3. Designing effective and efficient facilities



■ School layout



■ 3<sup>rd</sup> floor plan



■ 2<sup>nd</sup> floor plan

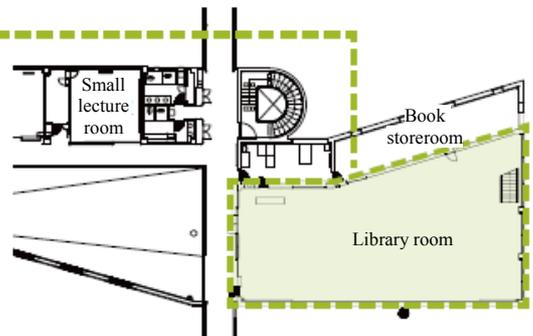
## 1. Improving spaces for developing independence Effectively arranging spaces for students to attain their goals and realize self-betterment



1 Library rooms have a large variety of books to meet the diverse needs of students. Students use the library rooms actively during lunch time and after school.



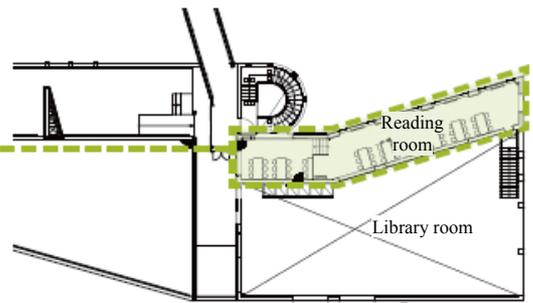
2 Teachers are also in the stations of individual academic groups separate from the staff room to provide advice to students at anytime.



4 2<sup>nd</sup> floor library room floor plan



3 Reading rooms are directly accessible from the library rooms but separated to prevent noise. Students can study by themselves in a tranquil atmosphere.



5 3<sup>rd</sup> floor library room floor plan

### Principal's Comment

#### Enabling flexible response according to the goals of the students

We asked the architects to create spaces for students to develop their individuality all over the school in accordance with the school goal, "students who are proactive in learning to realize their dream." As a result, spaces for students who learn willingly have been created in various places of the school.

Because the school has many elective courses and often invites lecturers from

universities and business firms, classrooms are also prepared accordingly. Furthermore, tables and chairs for students' self-study are placed not only in library rooms and self-study spaces but at many points along the students' traffic line. Information for advancement and study materials are on the tables so that anyone can use them at anytime. We have also prepared spaces for teachers to help students nearer to them. Students are making good use of these places and strengthening discipline. This way, unforced communication has developed among

students as well as between students and teachers (Photos 1 to 3 and 6 to 10).

2. Maintaining and improving the learning/living spaces

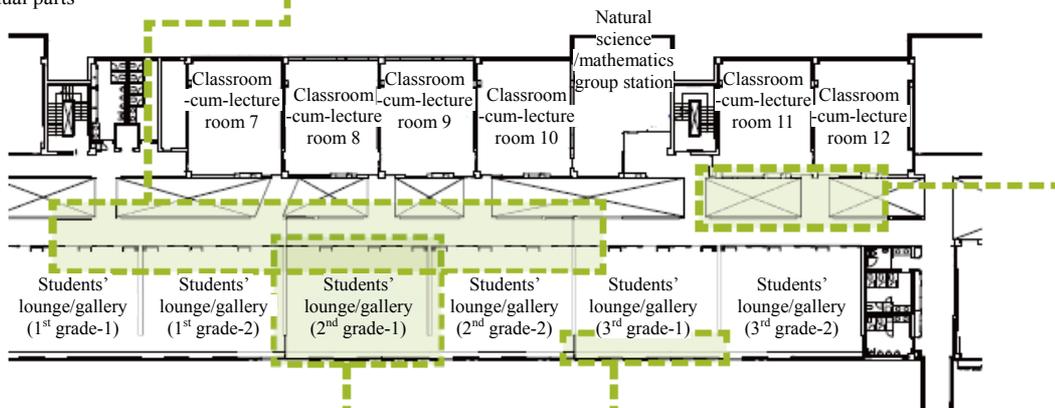
Lecture rooms and lounges are arranged in an integrated manner but with an adequate distance from each other.



6 Open design allows students and teachers who are coming and going to naturally recognize what is happening in individual parts



7 Doors at the front and the back of classrooms are connected to the pathway along the side of the lounges.



8 2<sup>nd</sup> floor plan



9 Students' lounges are used for varied purposes such as self-study, changing and lunch. There are also notice boards for their voluntary notice.



10 From a counter in the lounge you can see the junior high school building. This is a bright self-study space with natural lighting.

Teacher's Comment

**Design ingenuities to meet the respective needs of large and small rooms**

Our lecture hall is used most efficiently among the school's facilities. The hall is used by students, their parents, teachers, lecturers invited from outside and people of the community and in a variety of ways. Accommodating 200 to 250 people, the room is used also for meetings of students of the same grade, briefing sessions and lectures by external lecturers.

On the other hand, classrooms-cum-lecture rooms, and small lecture rooms are designed to meet their respective needs and teaching content. It appears that students can switch their mind by entering a room designed for the purpose and concentrate in class. Moreover, because classrooms are connected through a natural traffic line, they can move smoothly from one classroom to another. Small lecture rooms are designed to effectively use natural lighting.

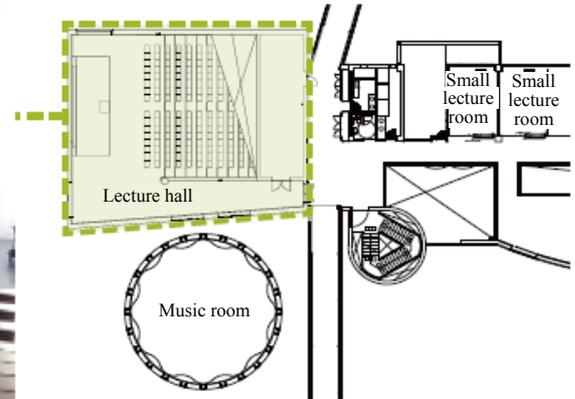
Whereas classrooms have large windows also on the corridor side, the only corridor-side window of a small lecture room is that installed in its door. Therefore, they have large windows to let the sunshine in the room to remove any cramped-in feeling. This way, students can attend classes with a sense of openness even in a small room (Photos 11, 14, Figure 15).

### 3. Designing effective and efficient facilities

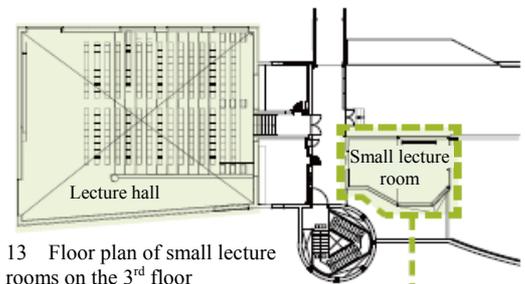
#### Flexible classroom organization to respond to changes in the number of students and various purposes



11 The lecture hall can be used for a wide range of purposes including meetings of students of the same grade, briefing sessions before the university entrance examination, lectures by external lecturers and concerts.



12 Floor plan of the lecture hall on the 2<sup>nd</sup> floor



13 Floor plan of small lecture rooms on the 3<sup>rd</sup> floor



14 Small lecture rooms for teaching according to the number of the students



15 Small lecture rooms are designed differently and chosen according to the teaching content.

#### <Architect's Comment>

© When executing the plan, we focused on satisfying the respective functional requirements of the six academic groups/tracks, junior and senior high schools, while visualizing them and preparing spaces for varied assemblies of people.

In the actual design process, we held two public meeting sessions to listen to opinions of education specialists and teachers involved. The meeting was announced widely so that anyone can freely participate with a view to

possible participation of local residents in school management and opening up of the school facilities to the community in the future.

The main traffic line in the school is a belt-shaped well hole called the Activity Belt connected to an inner courtyard. Through the belt you can see activities in other parts from anywhere in the school. The lobbies of the junior and senior high schools face each other across the inner courtyard to foster a feeling of unity among all students.

The needs of varied learning groups are met by a cluster of small lecture rooms, for example.

(Designed by Architectural design: Architectural Institute Atelier Fai (Φ))

# 4

Inzai, Chiba Prefecture

## Chiba Prefectural Inba Meisei Senior High School

- Course: Credit-based system/General course
- Classes: 8
- Students: 282
- Owner: Chiba Prefecture
- Location: 1420-9 Soufuke, Inzai City, Chiba Prefecture
- Type of the work: New construction
- Site area: 38,000m<sup>2</sup>
- Total floor area: 10,564m<sup>2</sup>
- Completion: Feb. 2010

### Creating a feeling of unity with focus on the Media Court as a center of learning, information, exchange and living

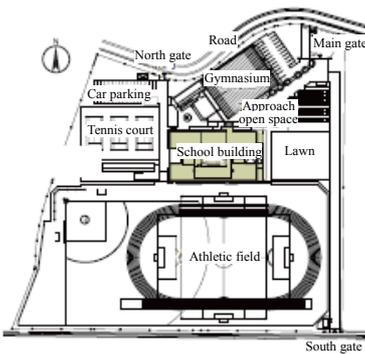
The Media Court brings a feeling of unity across the three grades encouraging learning and exchange. It is also the center of circular traffic designed to accommodate the large traffic flow of a credit-based system high school. A school LAN has been constructed for the future development of the computerization of education.



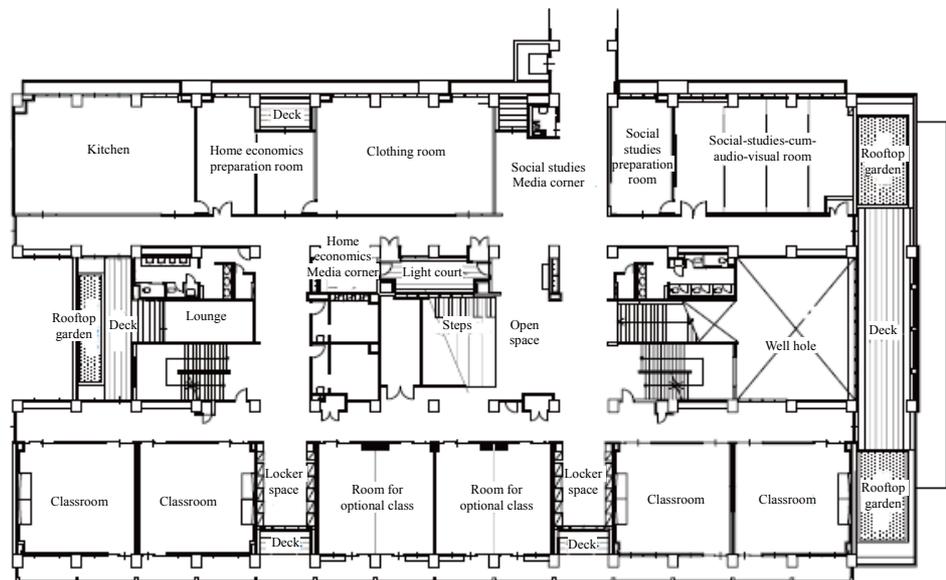
An approach with a relaxed atmosphere from the school gate receives students and people of the community. The school building is in the left rear and the gymnasium is to the right.

### Key points adopted in the plan from the revised guidelines

1. Improving spaces for developing independence
2. Maintaining and improving the learning/living spaces
3. Improving information education



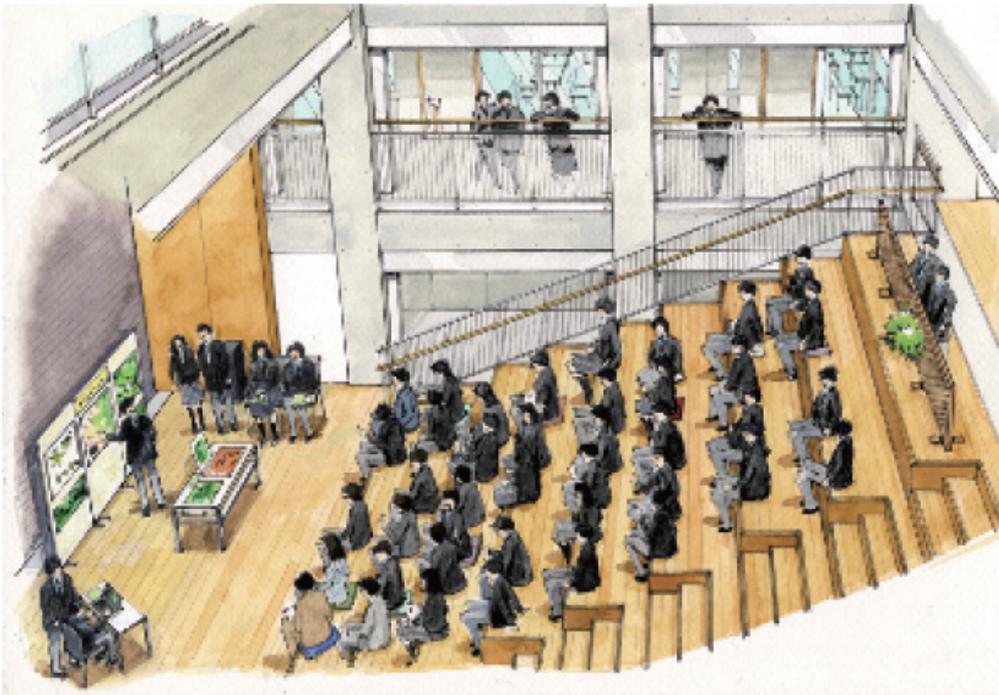
■ School layout



■ 2<sup>nd</sup> floor plan

## 1. Improving spaces for developing independence

The Media Court where people and information meet brings a feeling of unity across the three grades and encourages learning and exchange



1 STEPS is a stepped space at the center of the Media Court in a well hole from the 2<sup>nd</sup> to the 4<sup>th</sup> floor. It is also used for gatherings, events and presentations by students as shown in the drawing.



2 Students have free access to an open space in the Media Court. The place is used also for lunch.



3 The terrace is a space for refreshment consisting of a wood deck and a rooftop garden.

## Principal's Comment

### Media Court encourages students' learning and exchange

The Media Court around a well hole at the center of the school building is a space for learning and exchange where people and information meet. Consisting of STEPS, media corners, an open space and a terrace, the Media Court encourages students in independent learning and active exchange. It also brings a feeling of unity across the three grades. This is a place where students cheerfully communicate with each other.

### STEPS is the center of the Media Court

STEPS is a stepped space at the center of the Media Court in a well hole from the 2<sup>nd</sup> to the 4<sup>th</sup> floor. With a capacity of about two classes, STEPS is used for gatherings and events. It was also used for theatrical performance by students and rakugo stories by rakugo storytellers in school festivals as well as a display to introduce the school when a Chinese delegation visited the school (Figure 1).

### Creating a refreshing space with terraces and rooftop gardens

Terraces with rooftop gardens on the 2<sup>nd</sup> to 4<sup>th</sup> floors are a refreshing space where students can access easily. Here, students can see how plants grow. They also offer benefits for environmental education and mental health. For the future, we are planning open-air classes using the terraces (Photo 3).

## 2. Maintaining and improving the learning/living spaces

### Improving the living environment through natural lighting and a finish that conveys the warmth of wood



4 A relaxed atmosphere is created using wood for lockers adjacent to classrooms. Wood is used also for louvers on the ceiling.



5 The entrance of the well hole has a cheerful atmosphere partly thanks to good natural lighting and the use of wood for the interior.



6 *Sanbu* cedar produced in the prefecture is used for the ceiling louver of the music room.



7 Balance windows installed for natural ventilation in the upper part of the Media Court relieve the heat in summer to maintain a comfortable room temperature.

### Teacher's Comment

#### Building a school LAN system and responding to future needs for information education

A wired school LAN was built and information outlets are installed in each classroom. Each space of the Media Court is also equipped with an information outlet to provide an environment for prompt inquiry and information search for learning.

A raised floor was introduced to the staff room, office rooms, the library room, the computer room and the career guidance room in preparation for future change in information equipment and the progress

of computerization in education. There is a movable partition between the library room and the computer room to ensure interoperability (Photos 8 and 11, Figure 9).

The lecture hall on the 4<sup>th</sup> floor provides an information education environment for teaching using video on demand service, distance learning in high-school-university partnership and satellite classes. The hall is equipped with movable partitions to divide the space according to the teaching form. The space is also used for self-study and supplementary study (Figure 10).

### Student's Comment

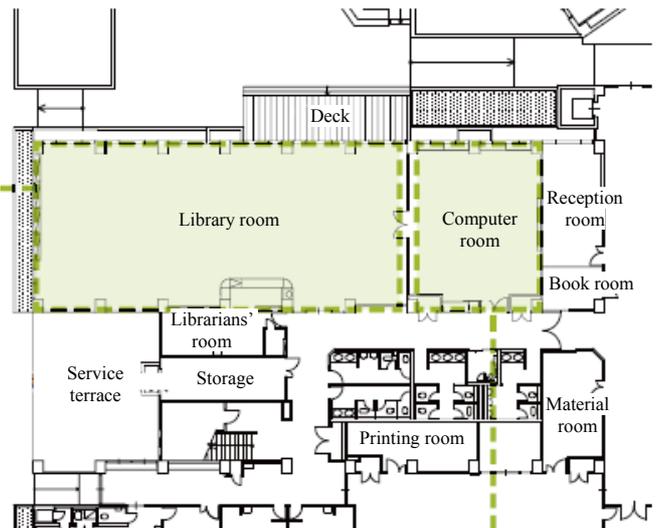
- The open space is a place where close friends gather. It is an essential part of my school life (Photo 2).
- STEPS makes the place always cheerful and nice (Figure 1).
- Benches before the classroom are a relaxing place for me.
- There are many places to ask questions including subject area stations and subject area media corners.

### 3. Improving information education

#### Preparing for future needs of information education by building a school LAN system and introducing raised floor



8 Information browsing corner in the library room



9 The Library room and the adjacent Computer room are divided with movable partitions to ensure interoperability.



10 The lecture hall on the 4<sup>th</sup> floor can be used for teaching using video on demand service.



11 The library room and the adjacent computer room with a raised floor

#### <Architect's Comment>

- ◎ The school is designed with circuit traffic lines to facilitate traffic in the credit-based system high school by adopting a clear zoning of the administration/classroom zone on the south side, the Media Court in the center, and the technical subject practice zone on the north side.
- ◎ The external side of the school is achromatic to take advantage of the surrounding greenery, while recycled wood, *Sanbu* cedar produced in the prefecture and *matebashii* (*Pasania edulis* Makino), are lavishly used for

- the interior to create a space with the warmth of wood (Photos 4, 5, 6).
- ◎ In the well hole at the center of the school, high side windows to let sunlight in and balance windows for natural ventilation are installed at the top part of the wall (Photo 7).

(Designed by Educational Facilities Institute Co Ltd)

# 5

Koto-ku Tokyo

## Tokyo Metropolitan OEDO Senior High School

- Course: Integrated course/Triple system
- Classes: 20
- Students: 503
- Owner: Tokyo Metropolitan Government
- Location: 3-2-11 Sengoku Koto-ku, Tokyo
- Type of the work: New construction
- Site area: 10,531m<sup>2</sup>
- Total floor area: 14,827m<sup>2</sup>
- Completion: Jul. 2004

### A Challenge School supporting diverse students to attain their goals

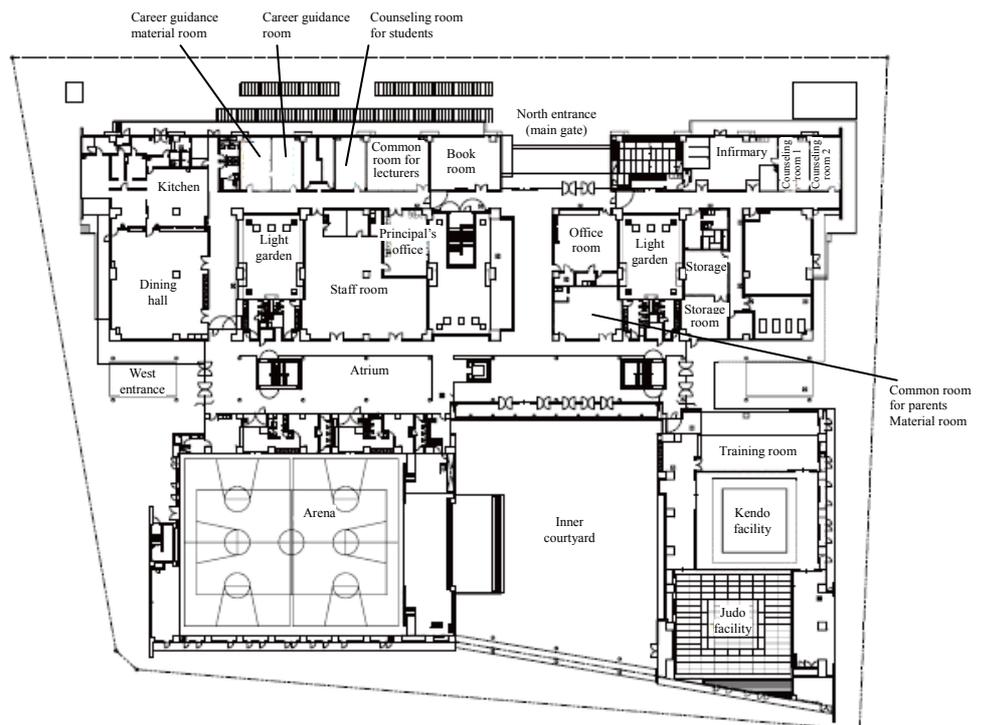
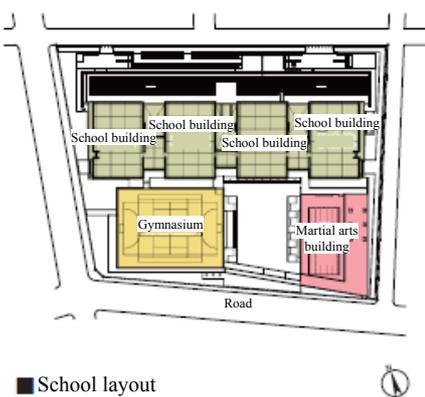
The school opened in 2004 as a new type of high school aimed at flexible and varied education. The school provides an environment for students to attend classes that suit their goals and levels, at the time convenient for them (triple system) and at their own pace (credit-based system).



Buildings in the back are school buildings. Gymnasium (with a rooftop ground) and martial arts building (with a rooftop swimming pool) in the foreground.

### Key points adopted in the plan from the revised guidelines

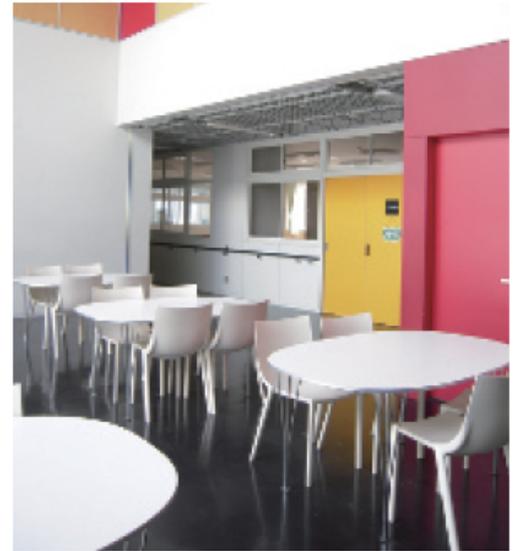
1. Improving spaces for developing independence
2. Improving language activities
3. Improving career/vocational education
4. Promoting special needs education



## 1. Improving spaces for developing independence Communication space to foster motivation for learning and exchange



1 The atrium is used for exchange among students and eating.



2 The students' gallery on the 2<sup>nd</sup> floor is filled with sunlight.



3 The library room on the 2<sup>nd</sup> floor is a place for exchange through group study between classes and after school.



4 The learning space on the 2<sup>nd</sup> floor is an open and bright space facing the Atrium. Students have lively conversations during group study and break time.

### Principal's Comment

#### Improving the counseling environment

The school is one of the Challenge Schools where varied students including those who refused to go to school in their elementary/junior high school years and students who dropped out of high school find their goals through school life and try to attain the goals. Because about 14% of our students have had the experience of visiting a department of psychosomatic medicine or similar institutions, the school places special

emphasis on counseling. We have two counseling rooms and a common room for parents to facilitate cooperation with families. Counseling rooms are used not only for private consultation provided by school counselors but also as a place where graduate students of the psychology department sent from partner universities talk with students to ease their anxiety and distress. Annually, over 1,000 students in total use the room and many of them say they could continue school encouraged by this support. All partitions of the staff room facing the

atrium are transparent glass so that teachers can see students arriving at school while students can confirm the presence of their teacher. This is a design to facilitate communication and bring a sense of ease (Photos 8 to 11).

2. Improving language activities  
Facilities to support language activities including discussions and presentation



5 Presentation of life plans, one of the designated subjects in the Challenge Program, using the audio-visual room on the 2<sup>nd</sup> floor equipped with projectors and audio equipment.

3. Improving career/vocational education  
Facilities to support varied course choice and expertise



6 A class of the traditional culture track of the integrated course. One space accommodates both lecture and practice.



7 The guidance room on the 2<sup>nd</sup> floor provides information for advancing to higher education or finding employment, which can be searched using PCs.

Teacher's Comment

Space supporting school life

We have over 80 chairs and tables in a three-floor-high atrium to ensure a place to stay for students, which is essential for a credit-based system high school. Because the place is adjacent to the staff room, it is used for communication between students and teachers as well as among students. There are many other spaces for students to relax and gather in addition to classrooms, including a students' gallery in a well hole through the 3<sup>rd</sup> and 4<sup>th</sup> floor, a self-study corner on the 2<sup>nd</sup> floor and an inner courtyard

on the 1<sup>st</sup> floor. With its wide corridors and all-glass partitions on the corridor-side of special classrooms, the school building is filled with an open feeling. These features make the school comfortable even for students who tend to feel uncomfortable with school life (Photos 1 to 4)

Software and hardware aspects of career education

Each student creates his/her life plan in "the industrial society and the human being," one of the designated subjects in

the Challenge Program. Students identify tasks and professions according to their interest, discuss them personally or in a group and present their life plans in the audio-visual room at the end of the first year.

In guidance for advancement or employment, teachers of the career guidance department provide specific advice in addition to full information. An open atmosphere is created in the guidance room so that not only seniors but anyone can freely stop to learn something about optional subjects or their own future.

#### 4. Promoting special needs education

##### Creating an environment with focus on counseling to encourage students to talk



8 Students can readily make contact their teacher in the lounge before the staff room because the staff room is glass-walled.



9 There are many smaller classrooms for small group teaching based on the students' level of proficiency.



10 In wood-based counseling rooms with a home-like atmosphere, school counselors and graduate students meet students sensitively.



11 The infirmary adjacent to the counseling rooms is used for making reservations for counseling and waiting.

The school has introduced a team teaching system. Involvement of multiple teachers invites not only questions about the teaching content but also consultations concerning career (Photos 5 and 7).

#### Designing facilities that foster individuality and ability

The school has special classrooms equipped with fixtures enabling specialized teaching of the traditional culture, life and welfare track and the information and business track.

In particular, the traditional culture practice room has custom-made processing machines for *Edo-kiriko* (cut glass) and tortoiseshell work in a large space with a high ceiling of over 5m. Citizen instructors who are traditional craftspersons say that it is easy to teach using the room.

#### Accommodating lectures, practice and observation

The life practice room on the 3<sup>rd</sup> floor consists of a Japanese-room space and a lecture space for effective learning of

traditional culture. In a tea ceremony class, for example, about 20 students are divided into two groups. The students of one group practice serving tea in the Japanese room while those of the other group are observing the practice. The room is glass-walled so that people can observe the class from the corridor as well. The multipurpose welfare room provides a large space for about 70 students to engage in activities at the same time (Photos 6).

# 6

Yokosuka City, Kanagawa Prefecture

## Yokosuka Municipal Yokosuka Sogo High School

- Course: Integrated course
- Classes: 24 (full-time) and 8 (part-time)
- Students: 960 (full-time) and 280 (part-time)
- Owner: Yokosuka City
- Location: 6-1-1 Kurihama, Yokosuka City
- Type of the work: New construction
- Site area: 68,466m<sup>2</sup>
- Total floor area: 31,576m<sup>2</sup>
- Completion: Oct. 2002

### Supporting the varied curriculums of the integrated course and individuality of each student

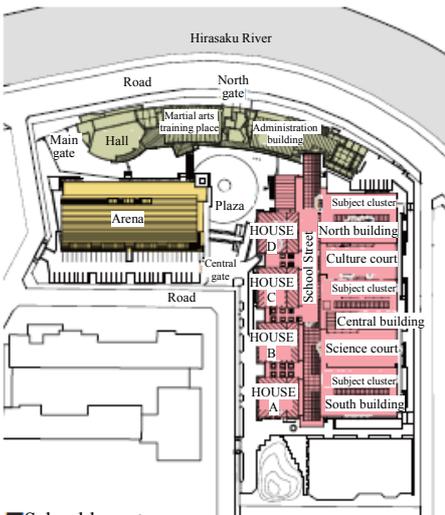
In the integrated course, second/third-year students choose from among over 100 track subjects. Providing a wide range of curriculums from classes utilizing computers to hands-on activities with a view to students' future careers, the school is creative in the layout and operation of the corresponding facilities.



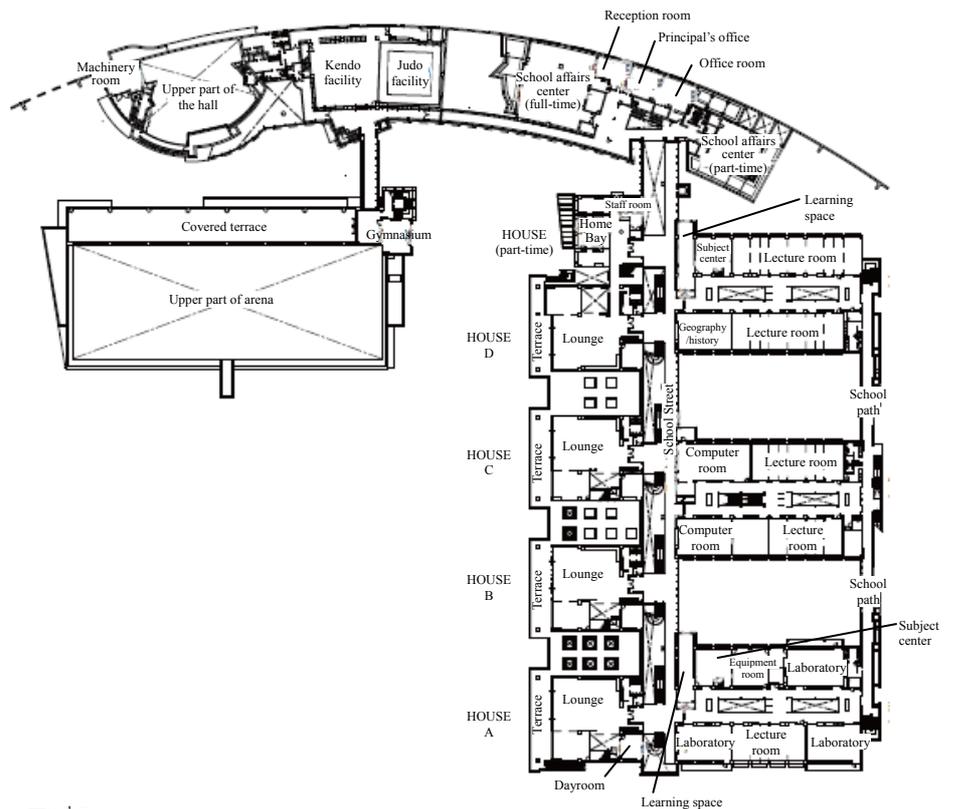
Birds-eye view of the school. Without fences and walls, the school is opened to the community and looks like a university campus.

### Key points adopted in the plan from the revised guidelines

1. Maintaining and improving the learning/living spaces
2. Improving career/vocational education
3. Improving information education



■ School layout

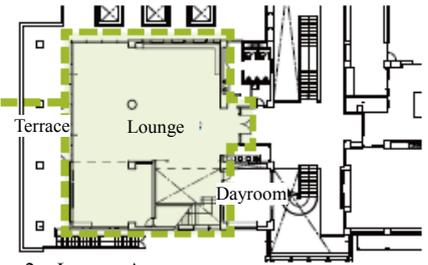


■ 2<sup>nd</sup> floor plan

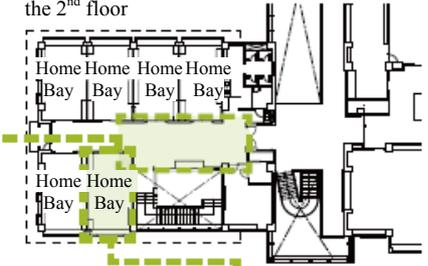
**1. Maintaining and improving the learning/living spaces**  
**Open and bright Lounges and Home Bays ensure a comfortable place to stay.**



1 HOUSE on the 2<sup>nd</sup> floor. A Lounge is provided in a HOUSE as a place to stay when there is no class.



2 Lounge A on the 2<sup>nd</sup> floor



3 Home Bay on the 3<sup>rd</sup> floor



4 Entrance of a Home Bay on the 3<sup>rd</sup> floor. Its wide opening makes it easy to enter/leave and check the inside.



5 Home Bays are equipped with furniture and lockers.

**Principal's Comment**

**HOUSES foster exchange and communication**

HOUSES as living quarters and Clusters for classes are placed across the School Street that is the central axis to ensure clear zoning and shorter traffic lines. Four HOUSES are provided for the 1<sup>st</sup> to 3<sup>rd</sup> year students and part-time students respectively as living quarters replacing homerooms. Each HOUSE consists of a Lounge on the 2<sup>nd</sup> floor and Home Bays on the 3<sup>rd</sup> floor. The floors are connected with a dedicated stairway. They are both used to stay in when there is no class to attend and designed for flexible use

according to the purpose. Color coding is adopted using the base color of each HOUSE on the walls and pillars to foster the character of the HOUSE and a sense of belonging. Home Bays where furniture is arranged in a creative way are spaces for communication among friends in addition to their functions as locker rooms (Photos 1 and 4, Figures 2, 3 and 5).

**Supporting career education from soft and hard aspects**

Students can choose classes with a view to their career focusing on the classes of "the industrial society and the human being" in the 1<sup>st</sup> year and "hours for comprehensive studies" in the 2<sup>nd</sup> and 3<sup>rd</sup> year. The school has an information environment and facilities for students to set their theme related to their future career path and conduct surveys, researches and presentations on them. The career center is equipped with information concerning career paths including employment and advancement

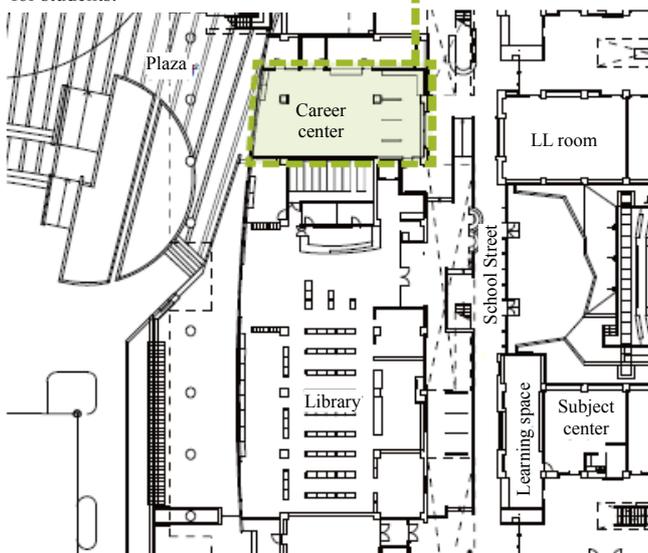
2. Improving career/vocational education  
Facility environment to support students' individuality and a career education system



6 In the Career Center, teachers of the career support group provide consultation for students.



7 A presentation of career research. Classrooms are equipped with a screen and projector to enable presentation using computers.



8 Floor plan of the career center, the library and the surrounding area on the 1<sup>st</sup> floor



9 The welfare room is equipped with a number of electric beds for nursing care practice.

Teacher's Comment

to higher education. The school has developed a system where teachers of the career support group provide consultation for students (Figures 6 and 8). The school adopted a two-teacher class system and improved its guidance function by appointing career counselors so that students can choose their careers based on their own ideas about their way of life. The school has an environment where each student can develop presentation, communication and information skills and self-education that are essential for his/her career (Photo 7, Figure 8).

Rooms for career education

The school has facilities that can accommodate both lectures and experiments to promote career education. The science cluster has three laboratories of conventional style where students sit facing each other and two laboratories that double as lecture rooms where all students sit facing the teacher. There are a welfare practice room and full-fledged pottery kiln for hands-on activities. They help students who aspire to be professionals (Photo 9).

Use of PCs is compulsory

Each student carries a laptop and can access the school server and the Internet through wireless LAN anywhere in the school. The Information Cluster has classrooms equipped with PCs and those with LAN cables so that students can use their laptops. These facilities give the school an advantage by making "information" compulsory.

### 3. Improving information education Synergy effect of students' personal computers and a network environment



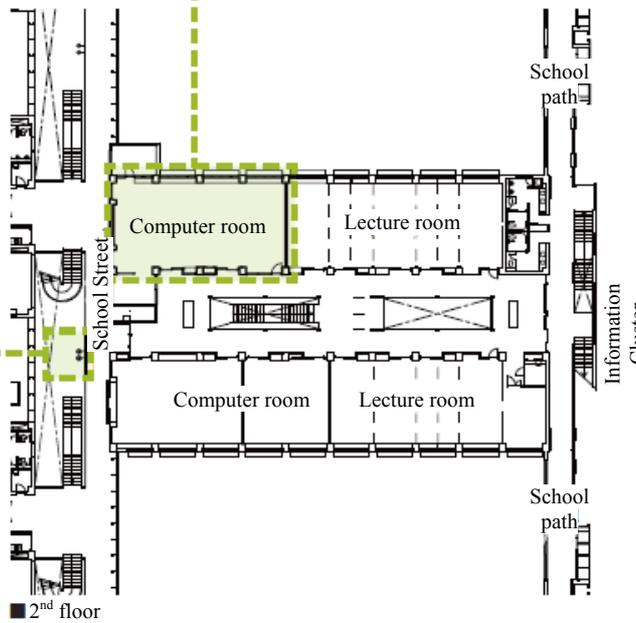
10 Computer room equipped with personal computers and LAN cables



11 All students use their own personal computers in lecture rooms



12 Information monitor in the public space displays various pieces of information including messages and learning through quizzes.



13 Floor plan of the information cluster on the 2<sup>nd</sup> floor. Lecture rooms can be divided using movable partitions.

Personal computers are used not only for the learning of subjects such as investigative learning but also for a wide range of applications such as registration of elective subjects, questionnaire surveys, notification of the exam coverage and report submission. The school employs one part-time and five full-time teachers with teaching credentials in information. Students master word processing and table calculation software at the end of the 1<sup>st</sup> year and learn the skill of presentation using computers by the time of their graduation (Photos 10, 11 and 12, Figure 13).

#### Swift information exchange

It is convenient to announce assignments and sample exam answers without paper using the school server, which has speeded up self evaluation by students. Correspondence is smooth thanks to the information monitor and emails. We can share information with other students and teachers using e-mails. A librarian is always in the library room to provide finely tuned service. Major newspapers are stored for one year and used for research (Photo 12).

#### Student's Comment

- The career center is helpful because it provides information on advancement and employment as well as career counseling. I also use consultation rooms and learning spaces for consultation with teachers (Figure 6).
- My favorite place in the learning/living space is the lounge, Home Bay and the library room. I use the lounge for self-study during my spare time and the library for investigative learning. I think the Home Bay is an important place for exchange because we don't see classmates so often (Photos 1 and 4, Figures 2, 3, 5 and 8).

# 7

## Kawasaki, Kanagawa Prefecture

### Caritas Junior & Senior High School

- Course: Unified junior and senior high schools/General course/Girls' school
- Classes: 12
- Students: 563
- Owner: Caritas Gakuen
- Location: Nakanoshima, Tama-ku, Kawasaki, Kanagawa Prefecture
- Type of the work: reconstruction
- Site area: 27,147m<sup>2</sup>
- Total floor area: 19,999m<sup>2</sup>
- Completion: Jul. 2007

#### Department system fosters independence and exchange

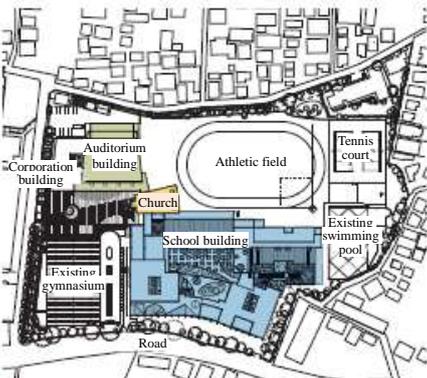
A department system is adopted to foster independent learning for a “heart to learn,” one of “the four hearts” constituting the school’s education philosophy. Home Bases ensure a place to stay for students to foster a “heart of companionship.” The science (subject area) center and science garden on the rooftop impress students with the joy of learning.



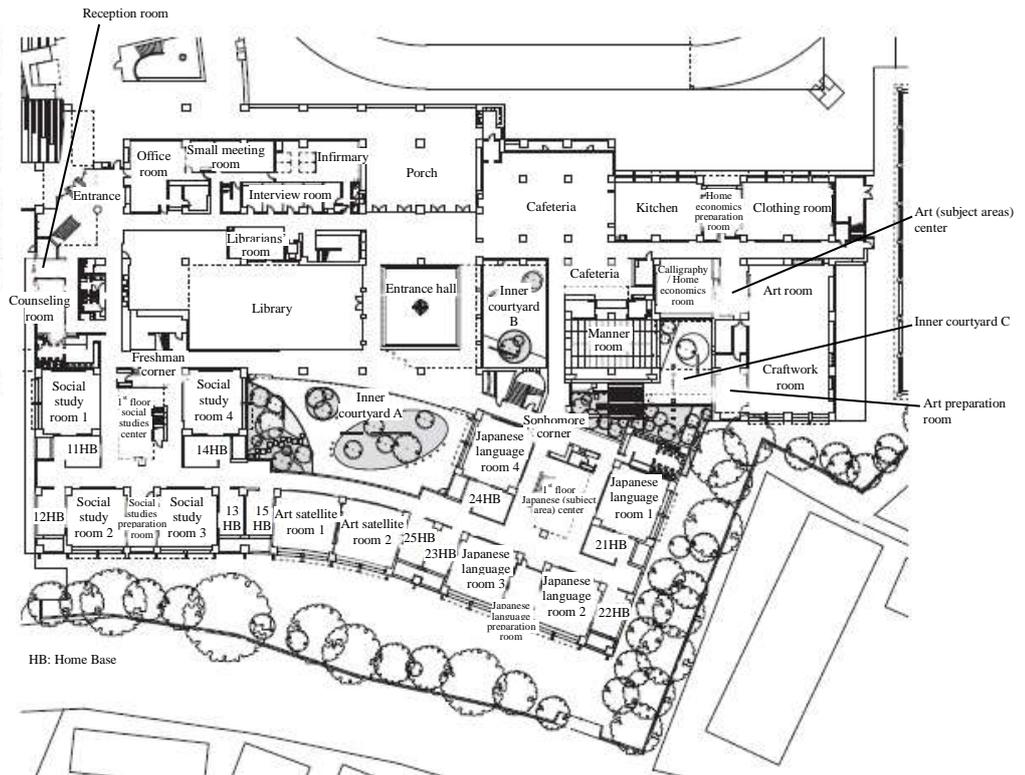
Birds-eye view of the school. The new school buildings are long-life buildings focused on the environment and safety.

#### Key points adopted in the plan from the revised guidelines

1. Improving spaces for developing independence
2. Maintaining and improving the learning/living spaces
3. Improving science and mathematics education



■ School layout



■ 1<sup>st</sup> floor plan

## 1. Improving spaces for developing independence Classrooms are grouped based on the zoning of the department system



1 The school affairs center in front of the staff room is equipped with furniture such as tables, counters and high tables that can be used differently according to the need. There are always some students coming here to ask questions.



2 The student information corner. Students can act on their own initiative by checking the day's schedule, etc. in the information display of their grade/entire school.



3 A subject center (media space) sends information in line with the purpose of the subject area's learning, helps exchange with teachers and shows students' works.

### Principal's Comment

#### Fostering independence through zoning based on department system

Classrooms are grouped into zones of subject areas. A subject center, an information corner for the relevant grade and a subject preparation room are placed at the center of each zone. Students know the day's schedule and obtain information on the subjects by looking at the display at its information corner, which is conducive to making a habit of obtaining information on their own initiative. A library is at the center

of the school and used for intellectual exchange across the grades and classes.

#### The entire school is a meeting and exchange place

Subject classrooms are used also as homerooms to strengthen the ties in a class. The neighboring Home Bases are dedicated to individual classes to develop relationships among students. We consider the entire school as a meeting and exchange place. Chairs and tables are placed in the school affairs center in front of the staff room, subject

centers, Home Bases and lounges on each floor, the inner courtyard and rooftops. You can see students talking with teachers about learning or engaging in conversation across grades (Photos 1, 4 and 6).

2. Maintaining and improving the quality of learning/living spaces  
Home Bases and Lounges secure places to stay for students. The entire school is a place for communication.



4 A Home Base adjacent to a subject room (right). The subject room-cum-homeroom and a place for relaxing are integrated.



5 The library is at the center of the school. With an open ceiling and glass walls, it is bright and open.



6 The lounge in the seniors' zone is equipped with comfortable furniture for relaxing.

Student's Comment

- We have many spaces for communication such as the library, the cafeteria and restrooms. Exchange with students of other grades is also easy. My favorite places are the library and the subject centers where I use a variety of materials.
- For self-directed learning I mostly use the Home Base, subject rooms, the library and the cafeteria. I use the school affairs center and the counseling room for consultation about troubles and anxiety concerning learning (Photos 2, 4 and 6, Figure 5).

Teacher's Comment

**Mechanism to encourage positive actions**

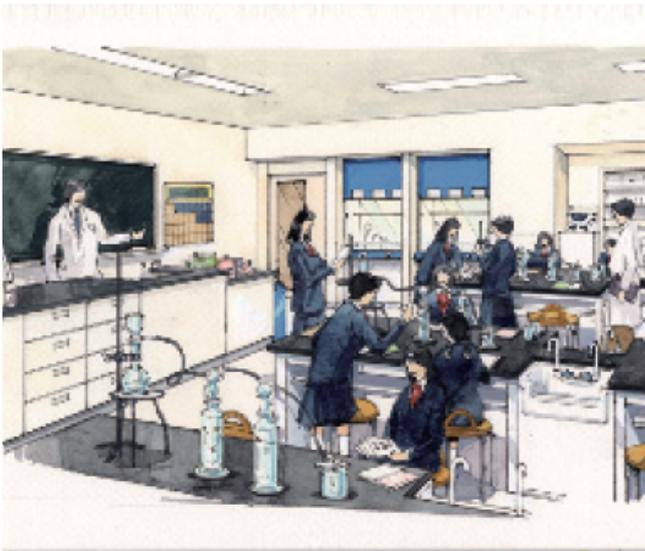
All students from the 1<sup>st</sup> year of junior high school to the 3<sup>rd</sup> year of high school move from one room to another every school hour but they have developed a proactive attitude to take classes on their own. Electronic bulletin boards help their scheduling. There is no time when intellectually curious students stop coming to the subject centers and the library (Photo 3, Figure 5).

**Subject centers are center of school life**

Subject centers are the center of lifestyle guidance and course instruction. Students come here to ask questions and communicate. Natural lighting through the inner courtyard and top lights make the school bright and students look more cheerful. Students linger in the school, likely because they feel cozy here (Photo 3).

### 3. Improving science and mathematics education

Exhibits in the subject center and a rooftop garden with local characteristics for learning in an enjoyable format



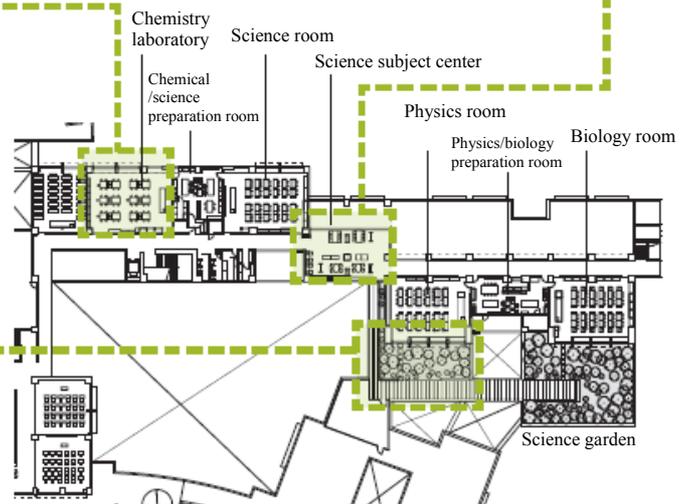
7 Chemistry laboratory equipped with various experimental instruments is designed with due attention to safety by introducing a draft chamber .



8 In the science subject center, students can learn while enjoying specimen exhibits and quiz corners.



9 Rooftop science garden. Students observe local vegetation from the classroom.



10 Floor plan of the science zone and the surrounding

### Devices to enjoy learning

Placing special emphasis on science and mathematics education, the school provides education with a focus on experiments and observation to develop logical thinking and scientific knowledge and to understand the deep relationship between nature and human beings. Its subject center is particularly well-equipped. It offers a specimen display, a science experience corner and a quiz to guess the type of feathers and trees so that students can enjoy learning science.

A subject unique to the school is *Tamalogy* to study the geological

formation plants, aquatic insects and river water quality on Tama Hills. We hope for students to deepen their understanding of the local nature and learn to value the encounters they can have only in the school. We created a science garden on the 4<sup>th</sup>-floor outdoor space reproducing the local vegetation so that students can do practical work in the school building in addition to fieldwork. Various flowers blossom in their season and wild birds visit the garden. Students can enjoy cherry blossoms in spring and the singing of insects in fall. They can observe the garden from the windows on the south side of the physics room and the biology room as well.

The chemistry laboratory is equipped not only with a wide variety of experimental instruments but also with a draft chamber for chemical experiments to create an environment that is safe and convenient to do experiments (Photos 8 and 9, Figures 7 and 10).

# 8

## Niigata City, Niigata Hokuetsu High School

- Course: General course
- Classes: 31
- Students: 1167
- Owner: Hokuetsu High School
- Location: Yoneyama, Chuo-ku, Niigata City, Niigata
- Type of the work: New construction
- Site area: 29,437m<sup>2</sup>
- Total floor area: 16,857m<sup>2</sup>
- Completion: Dec. 2009

### Simultaneous pursuit of learning and sports to develop students' independence

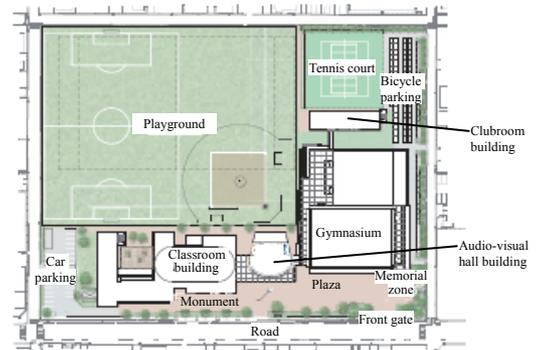
Spaces for exchange and self-directed learning are arranged in a well-balanced manner. Spaces enabling a wide variety of experiments and visually effective lectures create a rich educational environment. Equipped with sports facilities accommodating changes in weather and other conditions, the school strikes a balance between learning and sports.



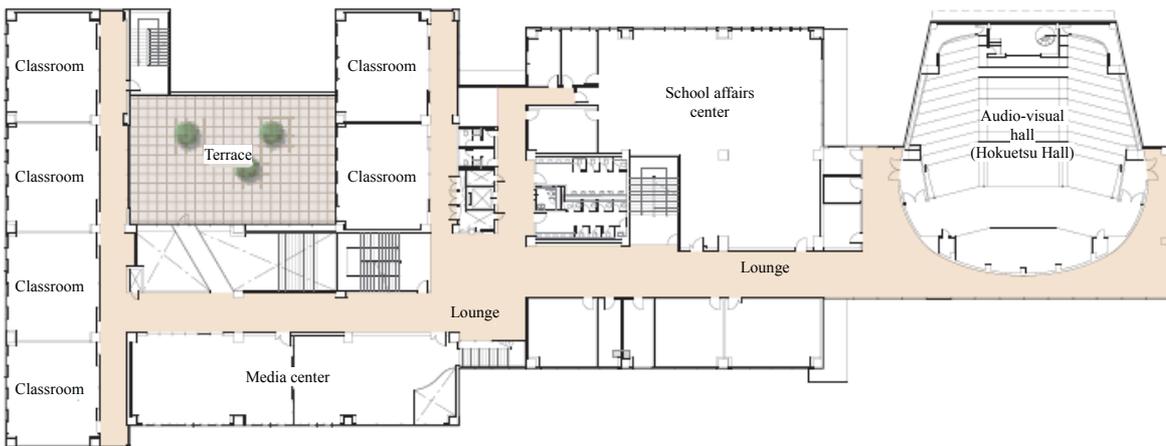
Full view of the school. Learning facilities and sports facilities are laid out in an L shape with a large playground.

### Key points adopted in the plan from the revised guidelines

1. Improving spaces for developing independence
2. Improving science and mathematics education
3. Improving the environment for physical exercise



■ School layout



■ 2<sup>nd</sup> floor plan

## 1. Improving spaces for developing independence

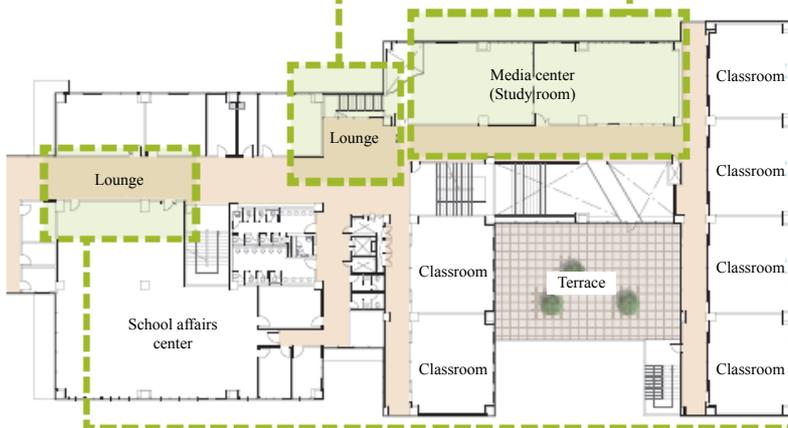
Well-balanced layout of spaces for exchange among students, consultation with teachers and self-study



1 The lounge is a place for exchange among students and communication with teachers



2 Study rooms are where students can concentrate on study.



3 Floor plan of the 2<sup>nd</sup> floor lounge and the surrounding



4 Exchange space for students to meet and study with their own initiative

## Principal's Comment

### Exchange Spaces revitalize communication

We have wide corridors across the school and a lounge called an Exchange Space on every floor. Equipped with chairs and sofas, Exchange Spaces are used for communication among students and between teachers and students at lunch time and after school. Before tests, students come here to study on their own initiative (Photos 1 and 4).

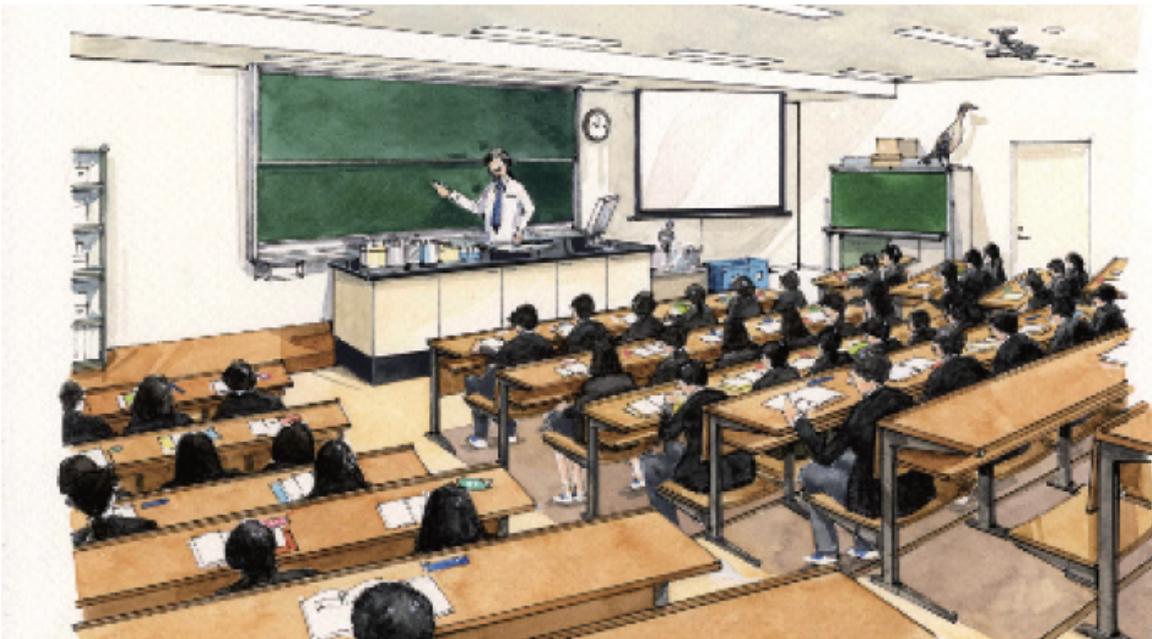
### Study room supporting individual learning

The study room adjacent to the media center (career guidance room) has 65 seats divided by panels for individual study. The room is available from 7:00 to 19:00 on weekdays and from 7:30 to 17:00 on Saturdays. Many students have made a habit of studying in the study room every morning and evening, or use the room on a daily basis during long vacations (Photo 2).

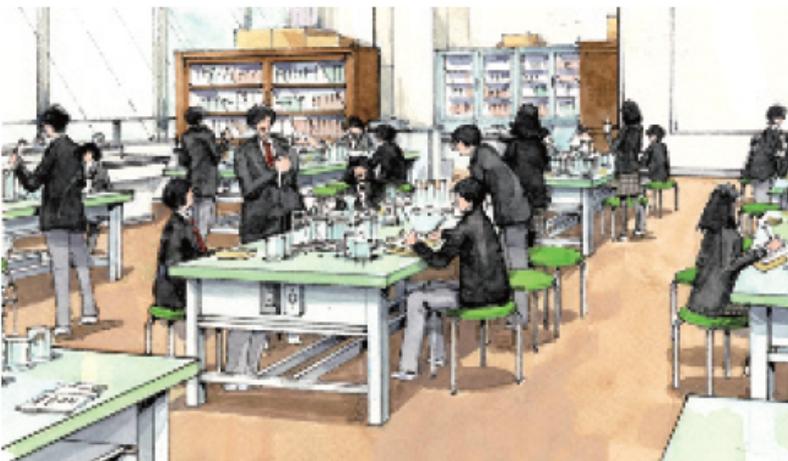
### Sports facilities for unconstrained activities

Considering the rainy and snowy weather of Niigata, we adopted artificial grass to our playground and tennis court, so we can provide outdoor sports education in winter as well. The facilities are popular among students because they can do sports comfortably in a clean environment in addition to the increased opportunity to use them. Furthermore, the running course in the arena is conducive to the improvement of gym class and club activities in winter.

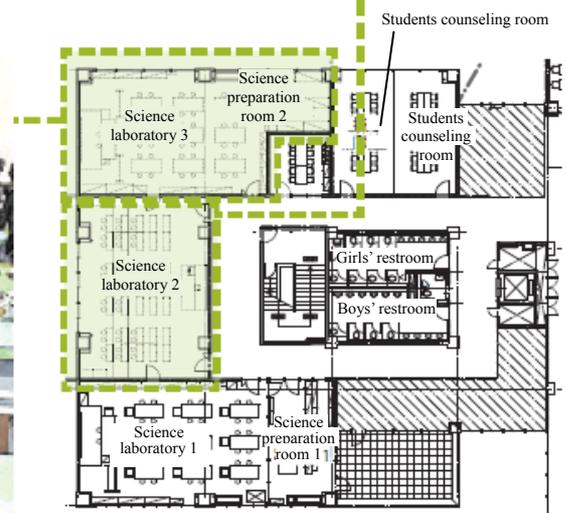
2. Improving science and mathematics education  
 Spaces enabling a wide variety of experiments and visually effective lectures



5 A science laboratory has equipment to project demonstrations and data



6 There are three science laboratories to enable a wide variety of experiments.



7 Floor plan of the 5<sup>th</sup>-floor science laboratory and its surrounding

Teacher's Comment

**Devices to deepen students' understanding**

One of the science laboratories is designed as a theater where even students in the back rows have a good view of the platform. A document camera was introduced to show students enlarged images of demonstration experiments. Explanation and sum up of experiments and commentary on problems can be made accompanied with graphs and tables on a screen.

We feel that the use of projectors has improved students' understanding and made teaching smoother (Figure 5).

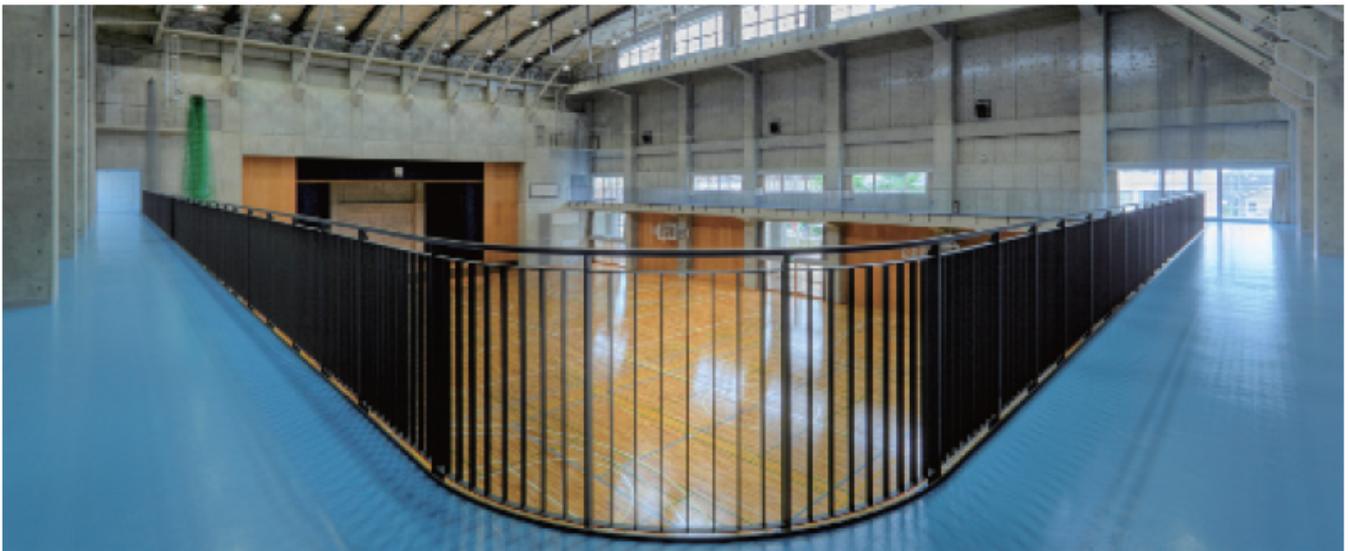
**Improving indoor sports facilities to enable activities in unfavorable weather conditions**

Students can use the running course on the 2<sup>nd</sup> floor of the 1<sup>st</sup> arena regardless of the weather and can also watch activities on the 1<sup>st</sup> floor of the arena. Furthermore, they can do muscle training using various

machines in the training room. The 2<sup>nd</sup> arena, the Judo/Kendo facilities, the table-tennis court and the wrestling area are equipped with ventilation ducts to purify air in the closed spaces. Radiant heating equipment was introduced to some facilities (Photos 8 to 10).

### 3. Improving the environment for physical exercise

#### Designing spaces for regular physical exercise with consideration to training environment and weather



8 Running course on the 2<sup>nd</sup> floor of the 1<sup>st</sup> arena



9 Sports facilities using a piloti with consideration to snow



10 The training room provides a comfortable environment with natural lighting and ventilation through windows all year.

#### Student's Comment

- I often use the study room before tests. It is quieter than in classrooms and other users' eyes don't bother me because each seat is divided by panels. Furthermore, I think the atmosphere of "we study" in the room improves my concentration and study efficiency (Photo 2).
- I belong to an athletic club. I like the clean and user-friendly sports facilities. The study room is designed

with devices to increase concentration on study. I think the sports facilities and the study room are essential for simultaneous pursuit of sports and learning (Photos 2, 8 to 10).

# 9

## Shizuoka, Shizuoka Prefecture

### Johann Shizuoka Junior and Senior High School

- Course: Unified junior and senior high schools /Advanced course (commercial course)
- Classes: 21
- Students: 840
- Owner: Nagashima Gakuen
- Location: 1-1 Minamiyahata-cho, Suruga-ku, Shizuoka, Shizuoka Prefecture
- Type of the work: reconstruction
- Site area: 16799m<sup>2</sup>
- Total floor area: 6208m<sup>2</sup>
- Completion: Oct. 2006

### Creating an information/learning environment and vibrant communication spaces based on a spatial facility design

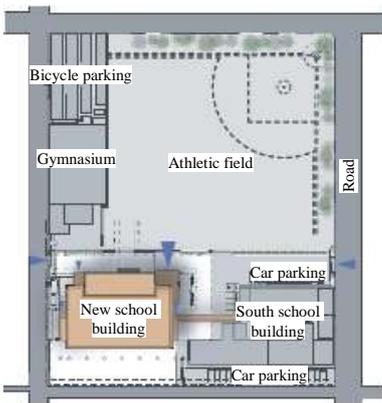
Spatial layout on limited land in an urban environment. The space composition brings visual communication and a sense of unity to students and the teacher in the two floor-high well holes and circulation spaces connected to learning spaces.



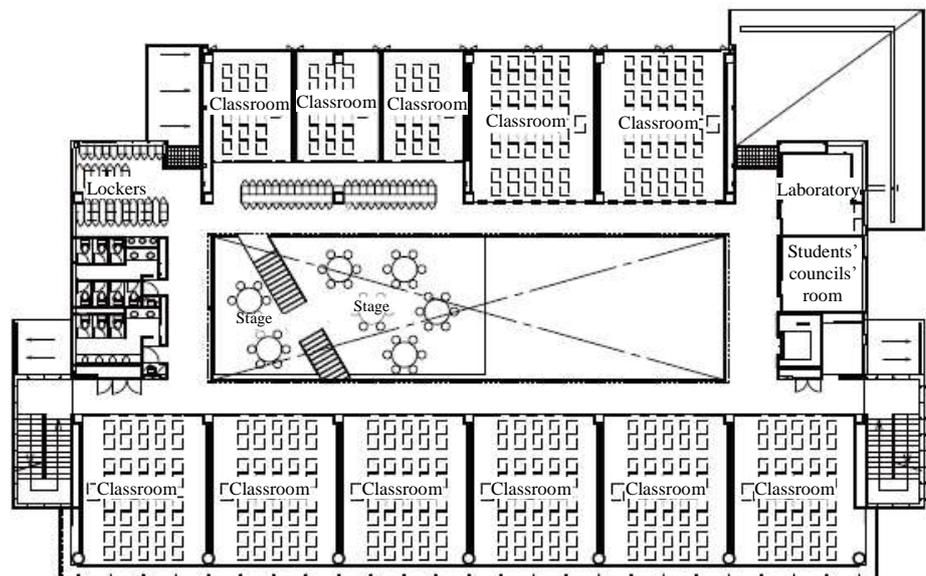
Full view of the school building. This is a compact building.

### Key points adopted in the plan from the revised guidelines

1. Improving spaces for developing independence
2. Improving information education
3. Improving career/vocational education

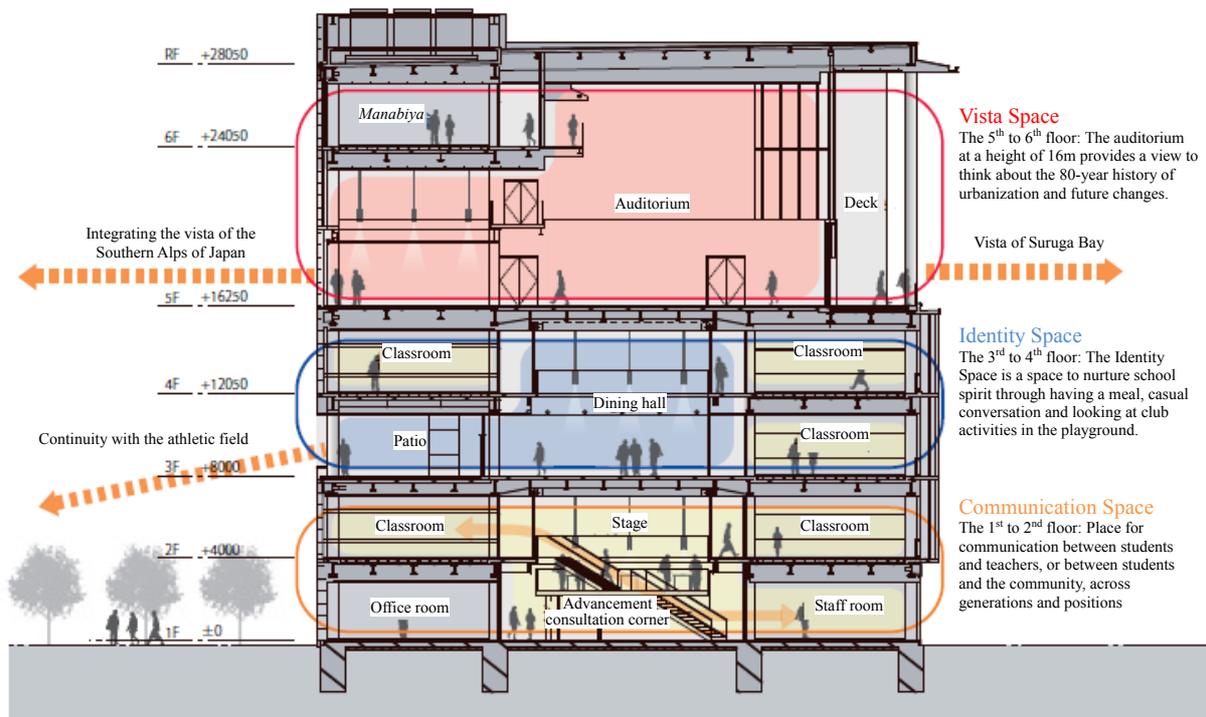


■ School layout



■ 2<sup>nd</sup> floor plan

## 1. Improving spaces for students to develop independence Translating “teaching” and “learning” communities into spaces based on three themes



1 Cross-section view



2 The Stage on the mezzanine level that enables crossover communication is also equipped with materials for advancement.



3 Classrooms are connected to circuit-type corridors. The glass partitions on the corridor side create a sense of unity.



4 The auditorium is used for varied purposes. With its movable partitions opened, it provides a view of Suruga Bay.

### Principal's Comment

#### Considering communication and ties with the community

The Communication Area in the Stage on a mezzanine level is a contact point among students as well as between students and the teacher.

The dining hall on the 3<sup>rd</sup> floor is a place for exchange across grades. The semi-outdoor patio adjacent to the dining hall is a space for students to refresh themselves.

Many say it is bright in the school building because of the high proportion

of glass. Furthermore, more parents are attending parent meetings. Many say this is because the inside of classrooms is fully visible from the corridor.

I thought students' voices from the well hole through the 1<sup>st</sup> and 2<sup>nd</sup> floors might interfere with conversation with guests but there is no such problem. The entrance floor is a comfortable space and is used in a variety of ways. For example, tatami mats are spread there to hold tea ceremony for international exchange with overseas high schools.

We can enjoy views to the north, south,

east and west everyday and feel the changes of the seasons (Photos 2 to 4 and 9, Figure 6).

## 2. Improving information education

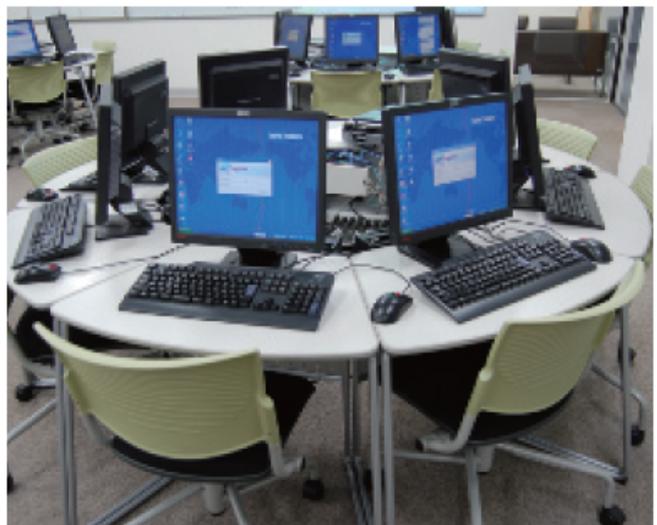
Lessons using personal computers are possible for all subjects



5 A class using a projector. Efficient teaching helps students further deepen their understanding.



6 A wall of the 1<sup>st</sup> floor entrance hall can be used as a screen to project images. The function is used for career option briefing and community events, for example.



7 Every desk in the school provides a LAN connection.

### Teacher's Comment

#### From *teaching* to *supporting*

In our school, computers are already used in various scenes of students' learning activities. Future advance of ICT will further develop students' independence and self-motivation, so the role of teachers will shift from teaching to supporting them. Therefore, we are working to create a ubiquitous education environment where we can use computers without being aware of them.

In terms of facilities, a power outlet and PC LAN port are on the desk of every student, while each classroom is equipped with a projector and a white board that can be used as a screen. They enable effective lessons using the Internet for any subject area.

As hands-on learning using ICT, our students run an on-line shopping mall in *Manabiya* on the 6<sup>th</sup> floor with the participation of companies mostly in Shizuoka City. Everything from planning

to management is conducted by students. As part of their learning, students find partner stores and create and administer their websites. This is active learning firmly linked with the community. (Photos 5, 7 and 8, Figure 6).

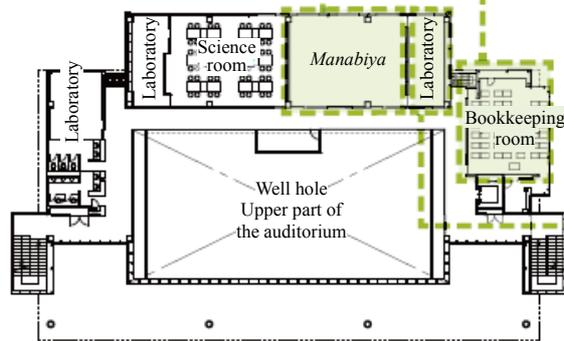
### 3. Improving career/vocational education Practical education to help students crystallize their idea about their future



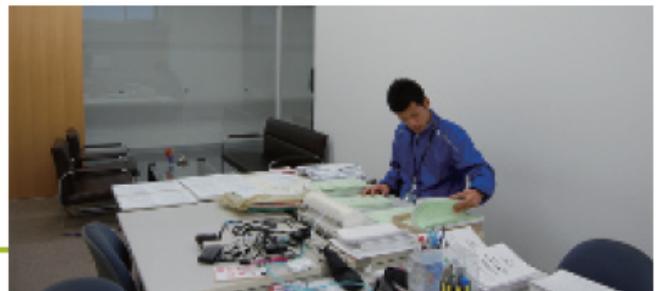
8 In the classroom named *Manabiya*, students learn skills based on the real world



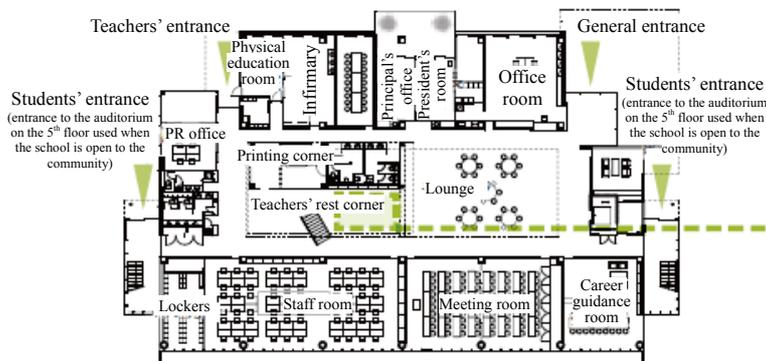
9 The bookkeeping room is specialized for obtaining qualifications. The classroom symbolizing the school is in the place with the best view.



10 6<sup>th</sup> floor plan



11 *Manabiya* is adjacent to a laboratory where teachers are stationed to provide consultation for students.



12 1<sup>st</sup> floor plan



13 The consultation space in front of the staff room provides information for career choice and learning materials. A teacher is always available for consultation.

#### <Architect's Comment>

We are requested to create a special composition for the new school with components such as enhanced communication between teachers and students, rebuilding of connections with the local community and understanding of nature. We created three spaces in three well holes with the following ideas:

◎ The 1<sup>st</sup> to 2<sup>nd</sup> floor:

#### Communication Space

A well hole connects the 1<sup>st</sup> floor with the administration department and the entrance hall to the classrooms

on the 2<sup>nd</sup> floor. The Stage is placed between them for communication between students and teachers, or between students and the community, across generations and positions (Photo 2, Figure 6).

◎ The 3<sup>rd</sup> to 4<sup>th</sup> floor:

#### Identity Space for Students and the School

The space consists of a two-story high dining hall and a half-outdoor patio. This is designed as a place where people feel the school spirit most.

◎ The 5<sup>th</sup> to 6<sup>th</sup> floor:

**Vista Space for History and Future**  
The auditorium symbolizing the school's founding principle is used for commencement, entrance ceremony and community events, providing a "vista" to many people (Photo 4)

(Designed by HARIGAYA ARCHITECTURE)

# 10

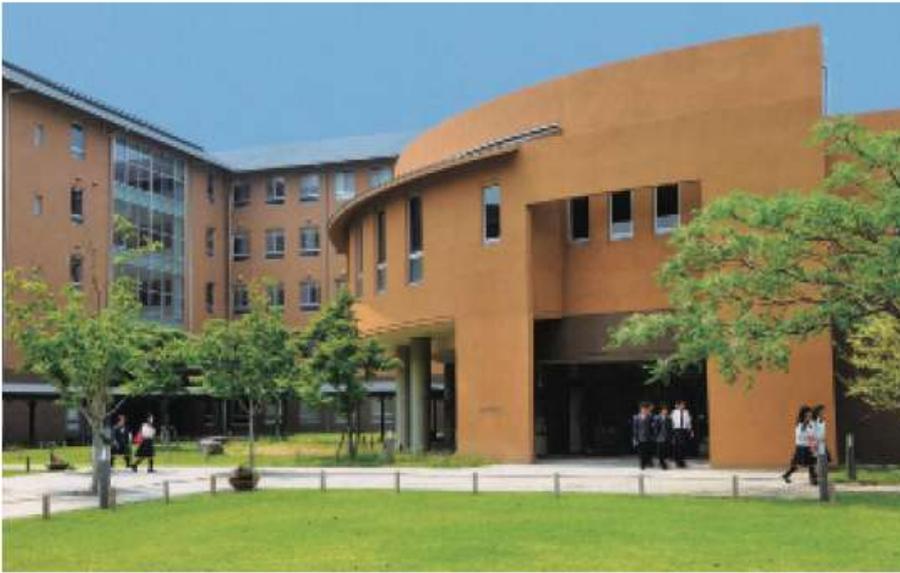
## Moriyama, Shiga Prefecture

### Ritsumeikan Moriyama Junior & Senior High School

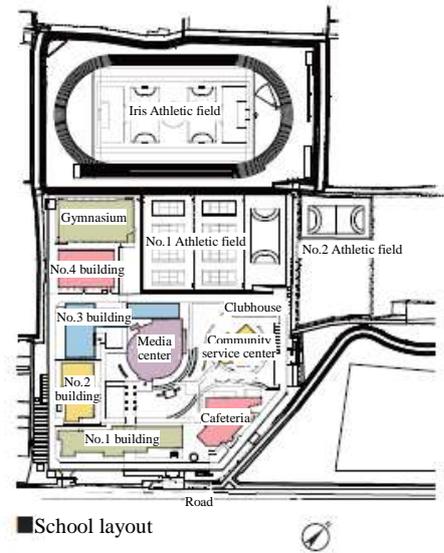
- Course: Unified junior and senior high schools /General course
- Classes: 16 (junior-high school) and 24 (high-school)
- Students: 488 (junior high), 904 (high school)
- Owner: Ritsumeikan
- Location: 250 Miyake-cho, Moriyama, Shiga Prefecture
- Type of the work: reconstruction
- Site area: 61,182m<sup>2</sup>
- Total floor area: 22,719m<sup>2</sup>
- Completion: Dec. 2010

#### Facilities to combine the humanities and sciences with focus on science education

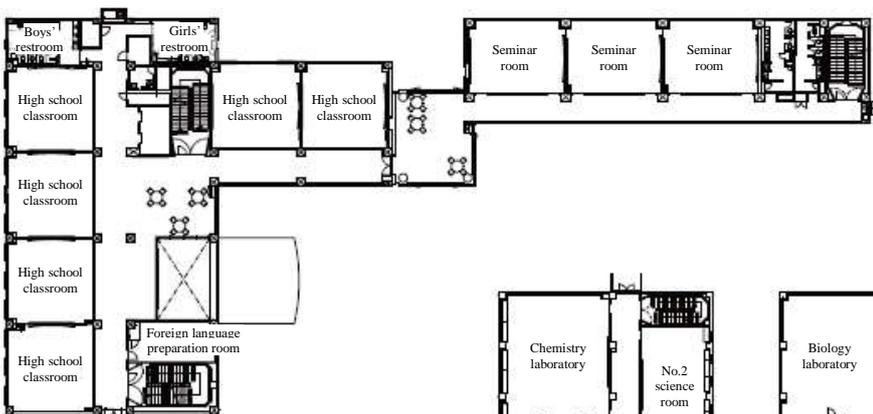
The school places emphasis on experience and experiments through its Super Science Program. Varied subject areas are linked through the media center at the heart of the campus. Facilities are used flexibly through collaboration with universities and career education to learn from the community and private firms.



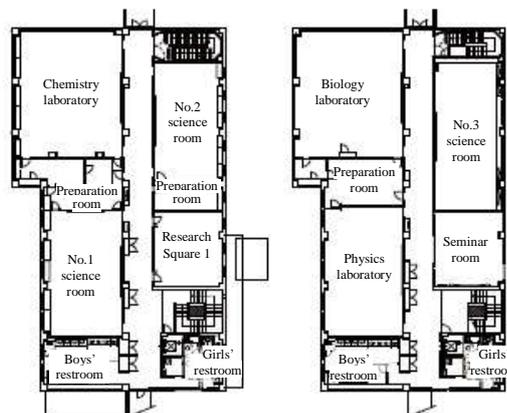
The campus built around a media center is open to the community.



■ School layout



■ No.3 building 2<sup>nd</sup> floor plan



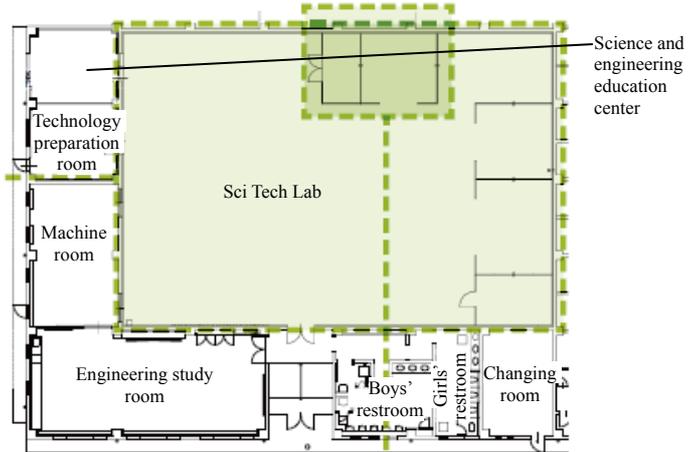
■ No.2 building 2<sup>nd</sup> floor plan

■ No.2 building 3<sup>rd</sup> floor plan

## 1. Improving science and mathematics education Learning science from manufacturing through experiments and practice



1 The Sci Tech Lab (a science and technology studio) is a large multipurpose space which was created by refurbishing a gymnasium. The lab has a tool/parts booth for free use of tools and a presentation corner equipped with a 200-inch screen.



2 Floor plan of Sci Tech Lab



3 Making things by hand at Sci Tech Lab  
Students learn knowledge and skills about science and the environment in a practical way through actual making of bio carts and robots.



4 Laboratory  
Lab benches are arranged for experiments by teams of three students. Lab benches have water, gas and electricity equipment as well as wireless LAN.

### Principal's Comment

#### Concentrating science rooms

The school provides comprehensive science education through experiments and manufacturing. All students advancing to our high school are enrolled in the Super Science Program. Our curriculum, focused on experiments and experience, increases the percentage of students who wish to take science courses from 30% at entry to 40% at the time of graduation. Our facilities supporting education/research activities include six science laboratories that are concentrated in the No.2 building that is easily accessible both from the junior high school (No.1 building) and the high school (No.3 building). Each lab bench

for students is designed for a team of three students and has water, gas and electricity outlets as well as wireless LAN and AV equipment including an electronic chalkboard (Photos 4).

#### Sci Tech Lab to learn science through manufacturing

The Sci Tech Lab is a facility to provide comprehensive science and technology education. It is our center of manufacturing education. The large space created by refurbishing a gymnasium is equipped with an electric crane enabling falling motion, projectile motion and other physics experiments as well as manufacturing of large

structures. The school offers a wide variety of programs including manufacturing in collaboration with the community or private firms, and learning from actual things and actual sites. For example, the Cycle Tech course provides education combining science and technology, in which students learn the structure and dynamics of bicycles from researchers of a big company(s) and disassembly/assembly from engineers of the local bicycle retailers' union (Photo 3, Figures 1 and 2).

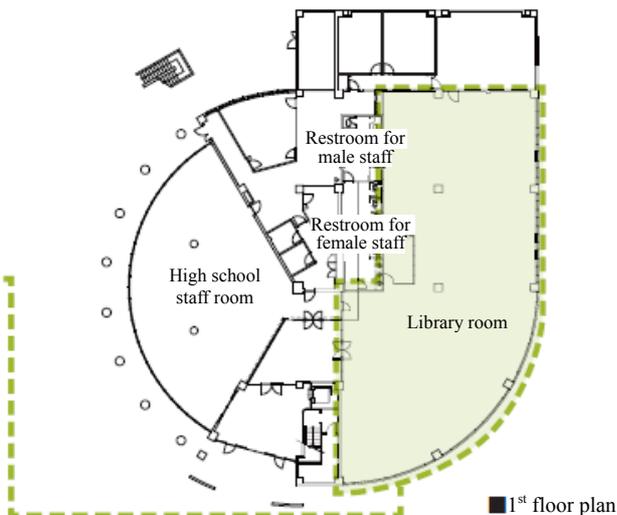
#### The Media center is the center of books and information.

The media center at the heart of the

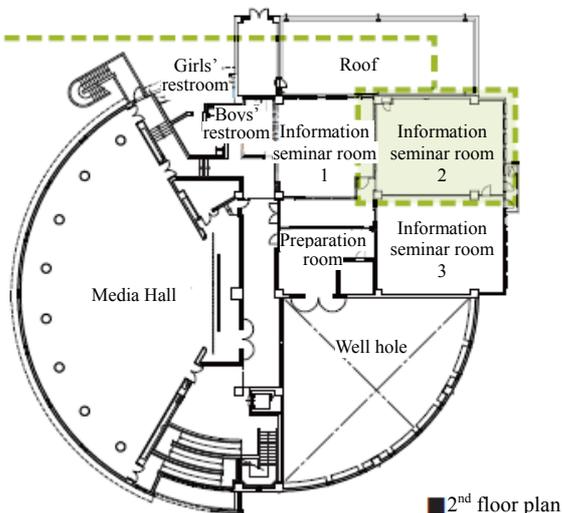
2. Improving information education  
Improving information education environment with focus on Media Center



5 The library has a calm reading room facing the inner courtyard, a browsing corner and computers for search. It is adjacent to the staff room to ensure prompt response to questions and consultation about learning.



6 Each of the three information seminar rooms is equipped with 44 computers and used for classes and extracurricular activities.



7 The media center is a circular building at the center of the campus. Housing a high school staff room and a library room on the 1st floor and a hall and information seminar rooms on the 2nd floor, the center is connected with the surrounding buildings through galleries.

campus is connected to the surrounding buildings through galleries. It houses the high school staff room and a library on the 1st floor and a hall with a capacity of 340 persons and three information seminar rooms on the 2nd floor. Information equipment is installed also in each laboratory and research square to support students' project studies. In the Advanced Program in partnership with Ritsumeikan University, the school invites university professors to provide specialized classes. For classes of over 40 students, the lecture room (72 seats) of the No.2 building or Media Hall (340 seats) is used (Photo 9, Figure 7).

**Facilities supporting career education and international education**

Students develop logical thinking and problem-solving ability through our high-school-university collaboration programs unique to the school, career education to learn from masters of various fields from the community/companies and presentations/discussions in English. The Media Center is essential for research studies and group discussions (Photo 8, Figure 7).

**Teacher's Comment**

**Facilities linking classroom lectures and practice**

In order to find clear goals and pursue expertise toward the future, it is necessary to develop the ability to think for oneself and solve problems. The Sci Tech Lab and Science Laboratories are designed with facilities/equipments and layouts to enable classes that link classroom lectures and practice (Photo 3, Figure 1-2).

**Media Center with a staff room**

It is equipped with facilities to support report writing and self-directed learning of each subject area. For example, high

### 3. Improving language activities Facilities to expand presentation ability



8 Small group English class according to the level of proficiency. The Media Center and Research Squares are used for preparation for presentation.

### 4. Career education In response to high-school-university partnership and regional alliances



9 Lecture by a university professor in Media Hall in the high-school-university partnership program



10 Research Squares are satellites of the Media Center. Desks and computers are arranged for investigation and study by group in a glass-walled open environment.

school senior art students are required to submit a graduation thesis while senior science students must submit graduation work. At the Media Center, they can use literature and materials of the library and study using computers and information networks (Photo 5, Figure 7).

#### System to support information education

The school has three seminar rooms similar to those of universities for different purposes. Each room is equipped with 44 computers and is used for classes and extracurricular activities. A resident administrator is exclusively

assigned to management of the computers to support teachers by troubleshooting and explaining how to use the equipment (Photo 6).

#### Research Squares for self-directed learning

Research Squares function as a satellite of the Media Center. Equipped with computers, printers and scientific journals, they are used for small-group learning and investigative learning. They are spaces for a wide range of self-directed learning including science, career and international education (Figure 10).

#### <Architect's Comment>

- ◎ Existing university buildings were converted for the junior and senior high school buildings. In campus layout planning, galleries connect dispersed school buildings to the Media Center to ensure smooth traffic of students. Relaxed communication lounges are arranged in the corridors before classrooms for exchange among students and between teachers and students. Research Squares are placed in various parts of the school for students' self-directed learning.

(Designed by Yasui Architects & Engineers, Inc.)





**A project commissioned by the Ministry of Education, Culture, Sports, Science and Technology  
Committee for Study of Case Examples in Response to the Revisions to the Guidelines for Designing  
High School Facilities**