DAIKIN

JIV0760

INSTALLATION EXAMPLES OF THE VRV® SYSTEM

SPECIALISED FOR LARGE BUILDINGS

EUROPE

EUROPE

EUROPE

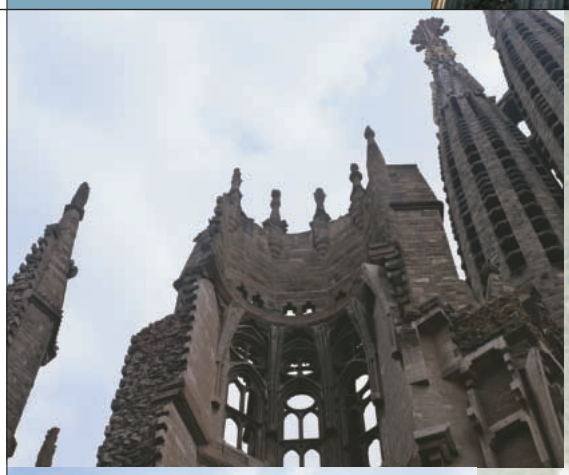
Les Miroirs
FRANCE

Holiday Inn Munich City Centre
GERMANY

Net Center in Italy
ITALY

Procisa-Edificios de Oficinas Terciario La Finca
SPAIN

Hilton Hotel Manchester
UK



Les Miroirs
FRANCE

Project Outline

Location	Paris La Defense, France
Number of floors	16F
Total floor area	63,000 m²
Date of completion	March, 2007

Equipment

Outdoor units	RXYQ5M9 × 4		**Indoor units**	FXDQ20N × 1630	FXMQ100M × 1
	RXYQ8M9 × 15			FXDQ25N × 134	FXMQ125M × 3
	RXYQ10M9 × 6			FXDQ32N × 69	FXNQ32M × 4
	RXYQ12M9 × 8			FXDQ40N × 13	FXNQ40M × 1
	RXYQ14M9 × 73			FXDQ50N × 3	FXZQ20M × 39
	RXYQ16M9 × 14			FXMQ50M × 41	FXZQ32M × 5
				FXMQ63M × 7	FXZQ50M × 2
Others	BACnet interface				

Les Miroirs

FRANCE

Design Drawing

Shown below are the floor plans for the 8th floor (fig-1) and 14th floor (fig-2). For the indoor units, duct type units were mainly used, in addition to ceiling-mounted cassette type units in some areas. Outdoor units were also placed on a portion of the 14th floor.

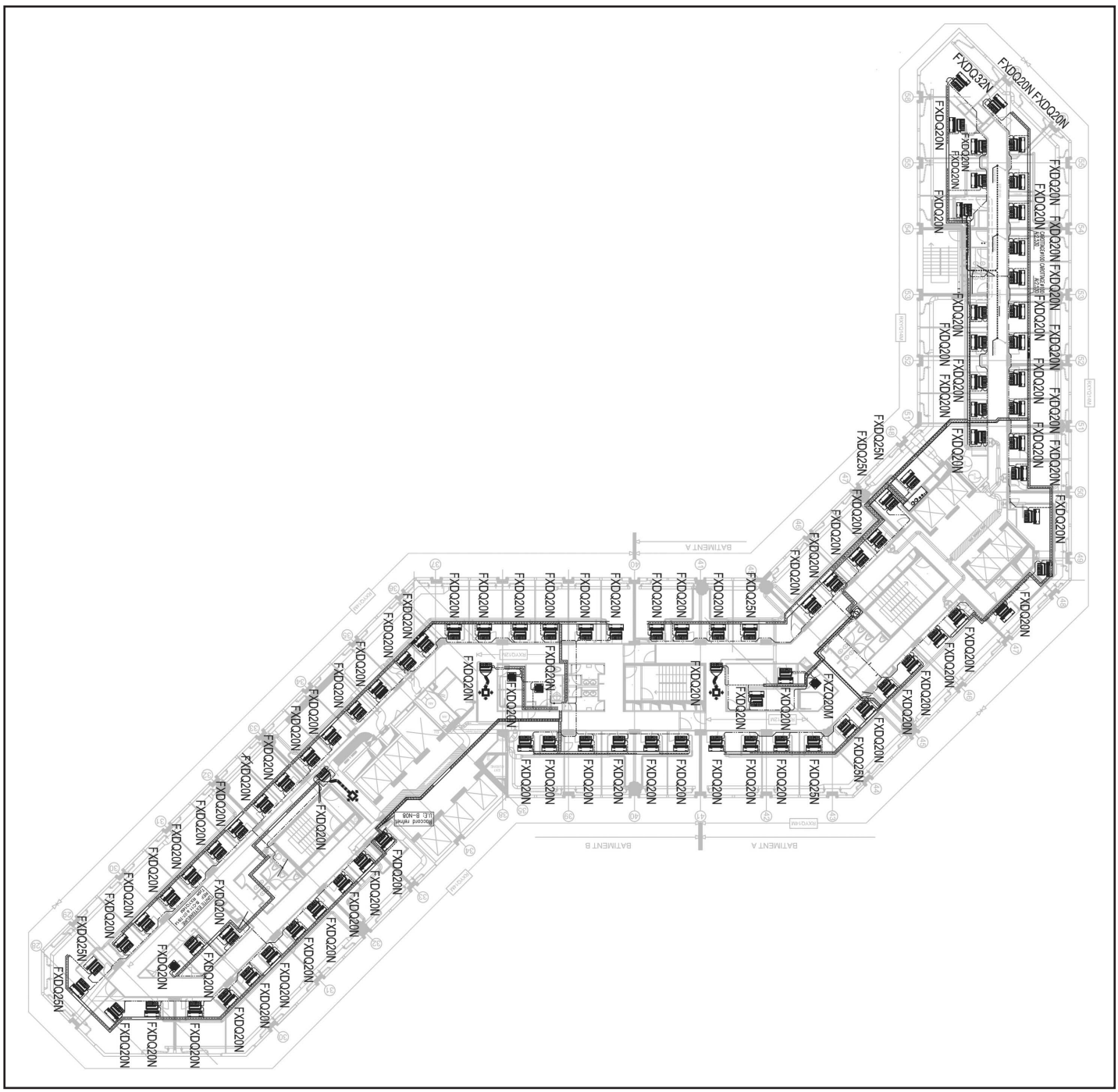


Fig-1 8th Foor Plan

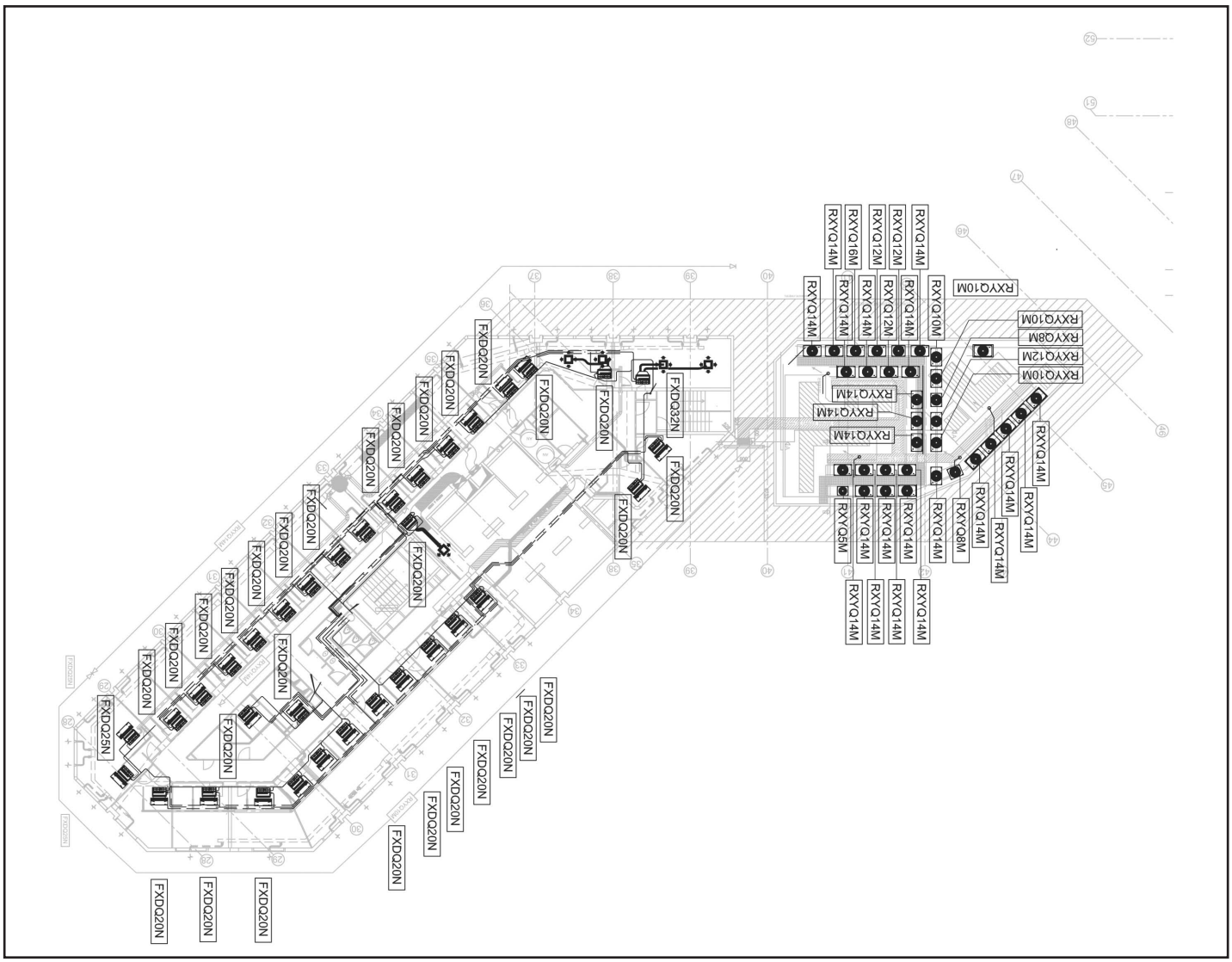


Fig-2 14th Floor Plan

Project Commentary

Les Miroirs is a famous architectural complex located at the centre of the business district "La Defense." It was built in 1981, and is composed of four towers with a total floor area of 63,000 m^2. Air conditioning was originally provided by the distribution of hot and chilled water into the facilities, which was supplied by a district plant. In 2002, the building's owners planned to renovate the complex and to install a self-sufficient heat pump for air conditioning. After investigating the latest available technologies, a VRV system was decided on as the best fit for the project.

The VRV system's superior energy savings was a key factor, allowing the owners to benefit from decreased running costs. The design flexibility of the VRV system made it possible to install the outdoor units in the available space on each terrace. In addition, it was possible to keep the working spaces operational during the renovation. Indoor units also matched the specific requirements for airflow rate and temperature control, and were connected to individual controllers for individually zoned control in each office space. The VRV system was linked to the BMS through a BACnet® protocol.

Holiday Inn Munich City Centre

GERMANY

Project Outline

Location	Munich, Germany
Number of floors	11F
Total floor area	17,000 m²
Date of completion	January, 2006

The Holiday Inn Munich City Centre was built in 1973 as the Penta Hotel and later became the Forum Hotel. In the summer of 2004 it was renovated and reopened as the Holiday Inn. The hotel is located in the centre of Munich and is easy to reach by metro, and also has convenient access to the airport by train. There are 603 rooms. Each is 25-30 m² in size, and rooms are located throughout the four buildings of the hotel. It is the largest Holiday Inn in Germany and the third largest in Europe.

Equipment

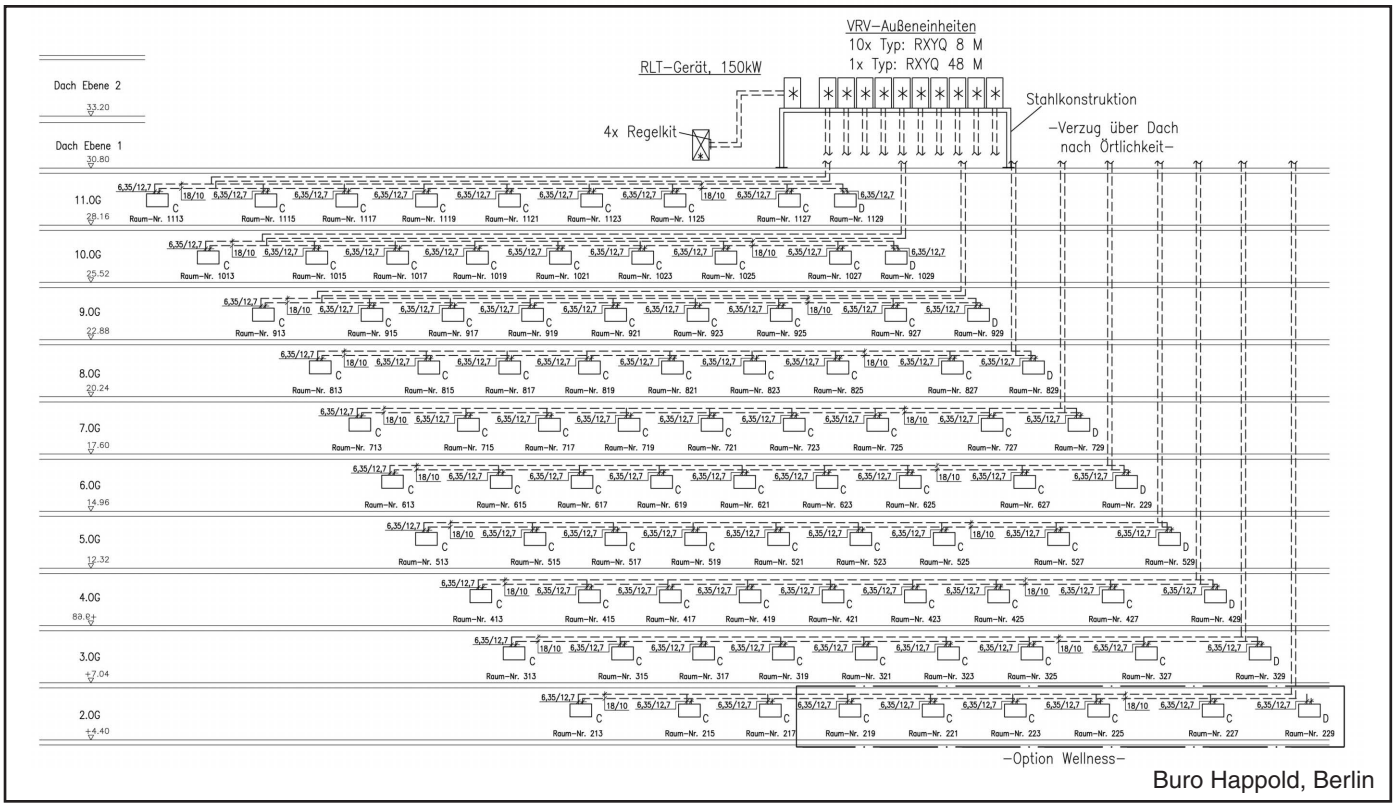
Outdoor units	RXYQ12M × 65	**Indoor units**	FXDQ20/25M × 630
Others	BRC2A51 × 630		

Holiday Inn Munich City Centre

GERMANY

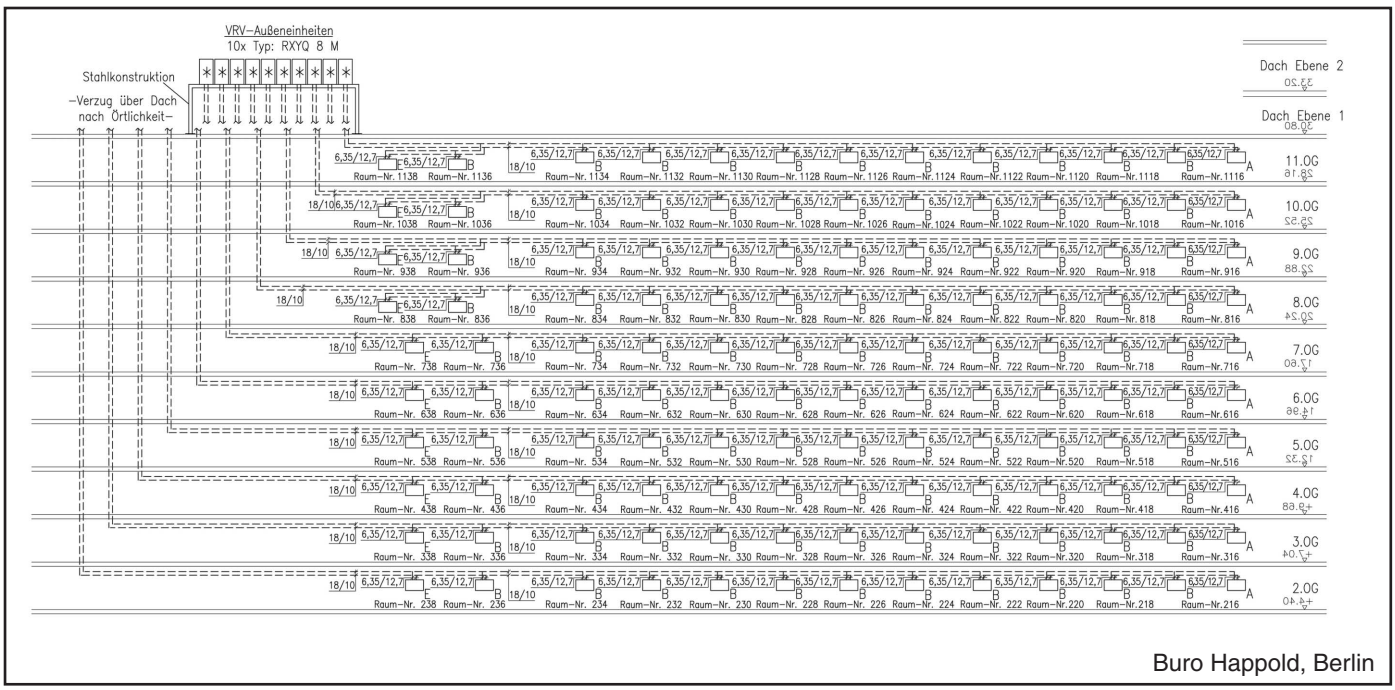
Design Drawing

Shown below are the piping schematic diagrams (fig-1 to 4).
The outdoor units were placed on the roof and connected to the rooms on each floor by ducts. Slim, duct type units were used for the indoor units.



Buro Happold, Berlin

Fig-1 Piping Schematic Diagram (Haus 2 Süd-Ost-Seite)



Buro Happold, Berlin

Fig-2 Piping Schematic Diagram (Haus 2 Nord-West-Seite)

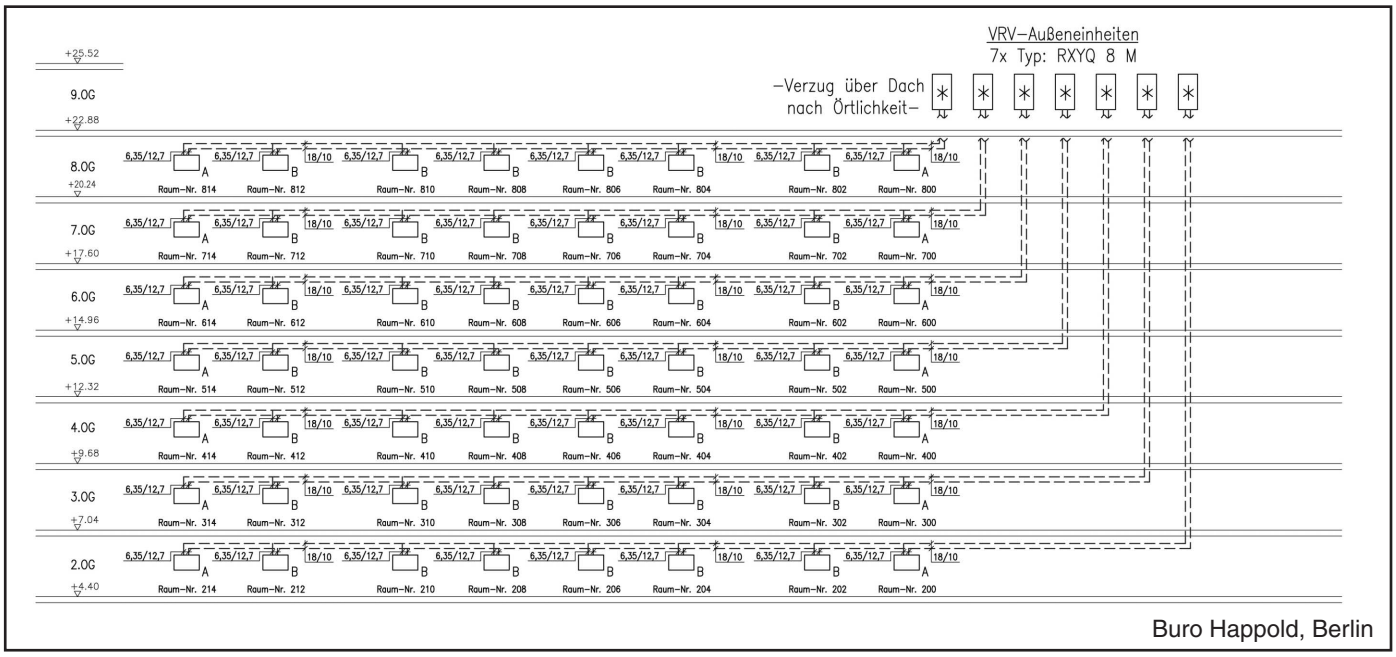


Fig-3 Piping Schematic Diagram (Haus 3 Nord-West-Seite)

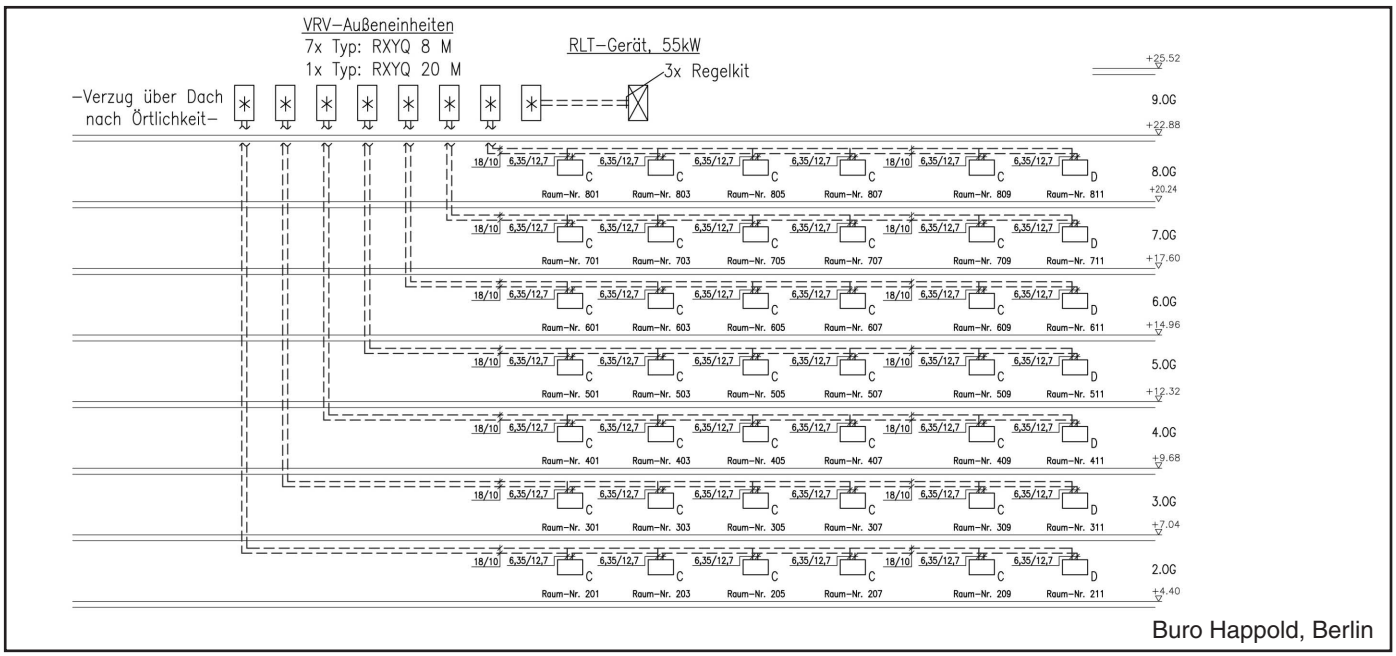


Fig-4 Piping Schematic Diagram (Haus 3 Süd-Osten-Seite)

Project Commentary

Originally, the four buildings of the hotel were supplied with chilled water using steam-driven absorption engines. A two-pipe system was used for chilled water in summer and steam-heated water in winter. This system was very old and had high running and maintenance costs.

New government standards for fire protection required a complete renovation to protect the building from fire. The old piping no longer met the new requirements. Air conditioning was essential for the Holiday Inn, so discussions were held in 2004 on whether a 4-pipe system or an individual heating-cooling system should be installed. Finally, only a VRV 2-pipe system was able to meet all the requirements. Its small pipe diameters met German fire protection standards and the R410A system conformed to the high German building standards.

The VRV system could be installed step by step, so only one third of the hotel rooms at a time had to be set aside for construction. Installation began in July 2005 and was completed in January 2006 (taking half a year for 600 rooms). Noted benefits include: the capability of the VRV system's heating to handle temperatures down to -20°C, 30% lower estimated running costs, allowance of 50-metre height difference (11 storeys), and safe heating with 65 outdoor units, which provides a backup in case of circuit failure.

Net Center in Italy

ITALY

Project Outline

Location	Padova, Italy
Number of floors	Tendenza Bldg. 5F Acciaio Bldg. 20F Economia Bldg. 5F
Total floor area	Tendenza Bldg. 16,800 m² Acciaio Bldg. 13,800 m² Economia Bldg. 9,500 m²
Date of completion	Tendenza Bldg. 2006 Acciaio Bldg. 2007 Economia Bldg. 2008

Equipment

Outdoor units	RXYQ8M9 × 34	**Indoor units**	FXSQ25M × 112
	RXYQ8P × 70		FXSQ32M × 444
	RXYQ10P × 16		FXSQ40M × 120
	RXYQ12M9 × 18		FXSQ50M × 20
	RXYQ12P × 11		FXSQ63M × 44
	RXYQ14M9 × 20		FXLQ25M × 32
	RXYQ18M9 × 1		FXLQ40M × 364
	REYQ12M × 16		FXSQ125M × 6

Others	VKMP50GMR × 40
	VAM 800 FJV × 58
	VAM 1000 FJV × 70
	Bacnet Gateway × 10

Net Center in Italy

ITALY

Design Drawing

Shown below are the typical floor plans for Economia building (fig-1, 2), Tendenza building (fig-3, 4), and hotel floors (fig-5) and office floors (fig-6) of Acciaio building. Duct and floor-standing types were mainly used for the indoor units.

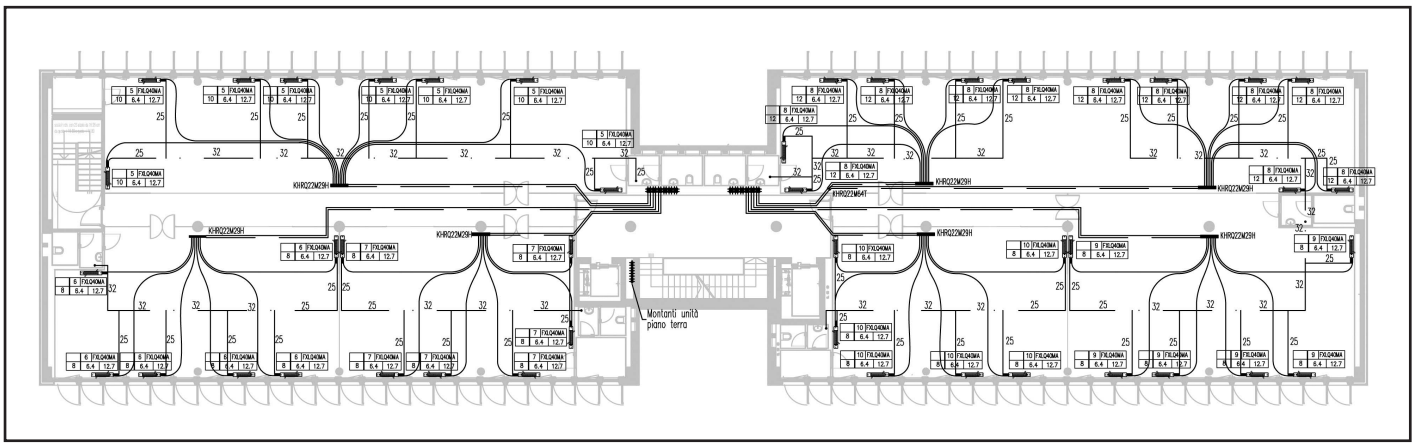


Fig-1 Economia Bldg. Typical Floor Plan (1)

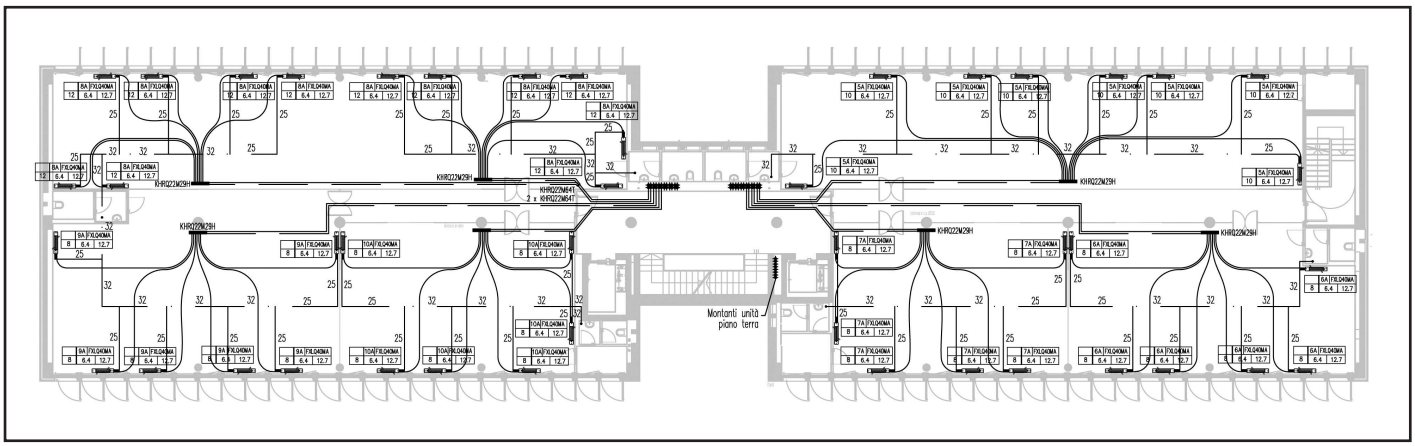


Fig-2 Economia Bldg. Typical Floor Plan (2)

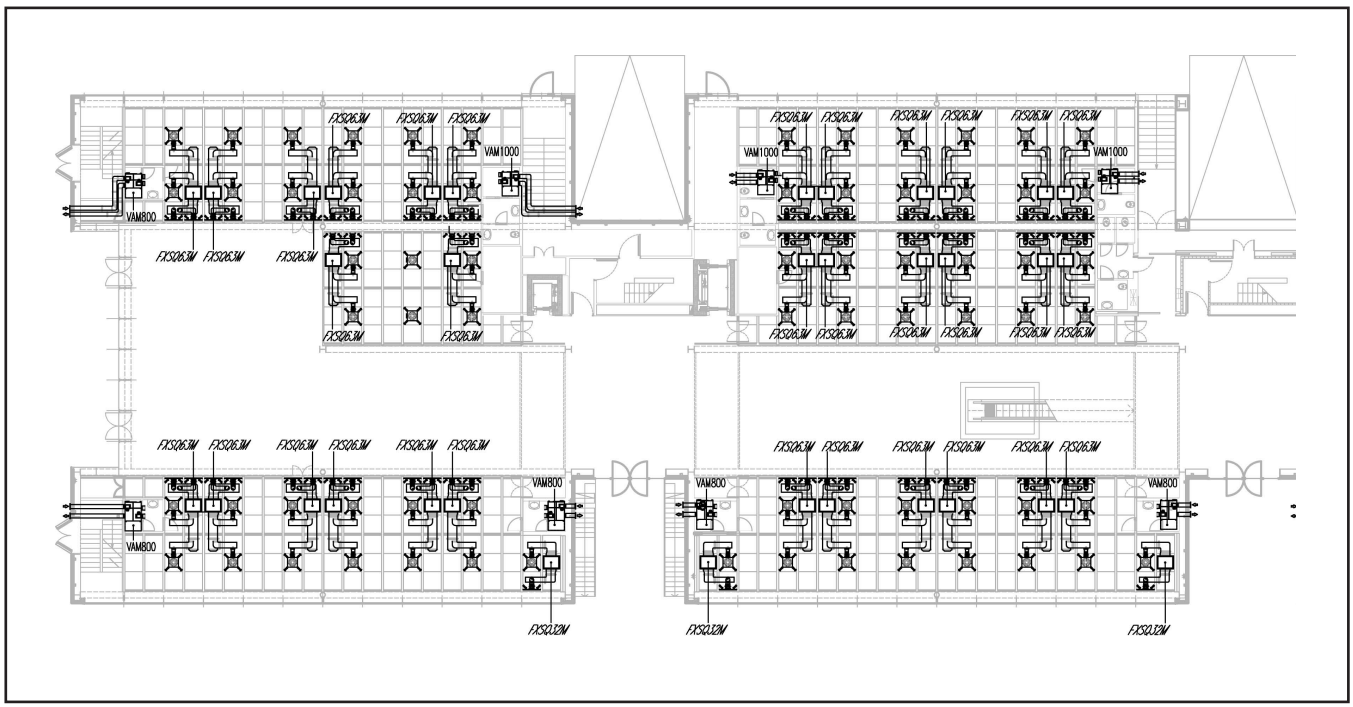


Fig-3 Tendenza Bldg. Typical Floor Plan (1)

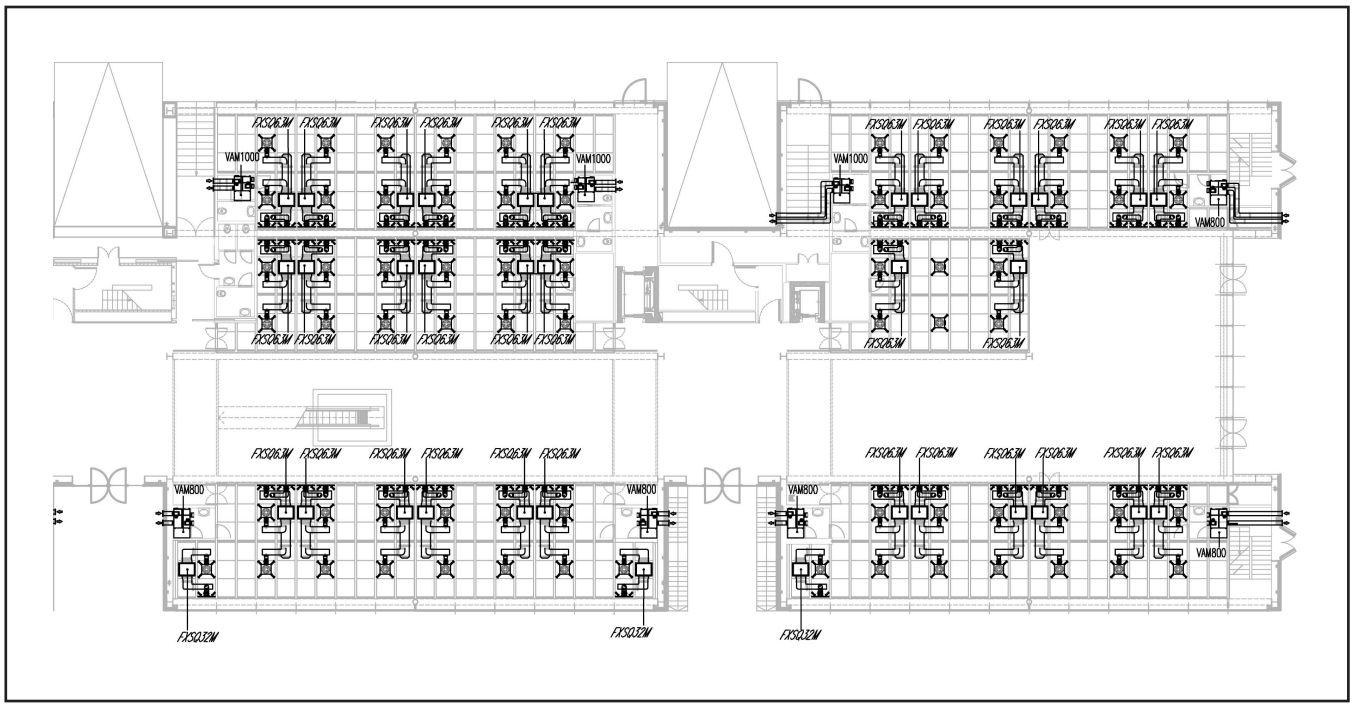


Fig-4 Tendenza Bldg. Typical Floor Plan (2)

Net Center in Italy

ITALY

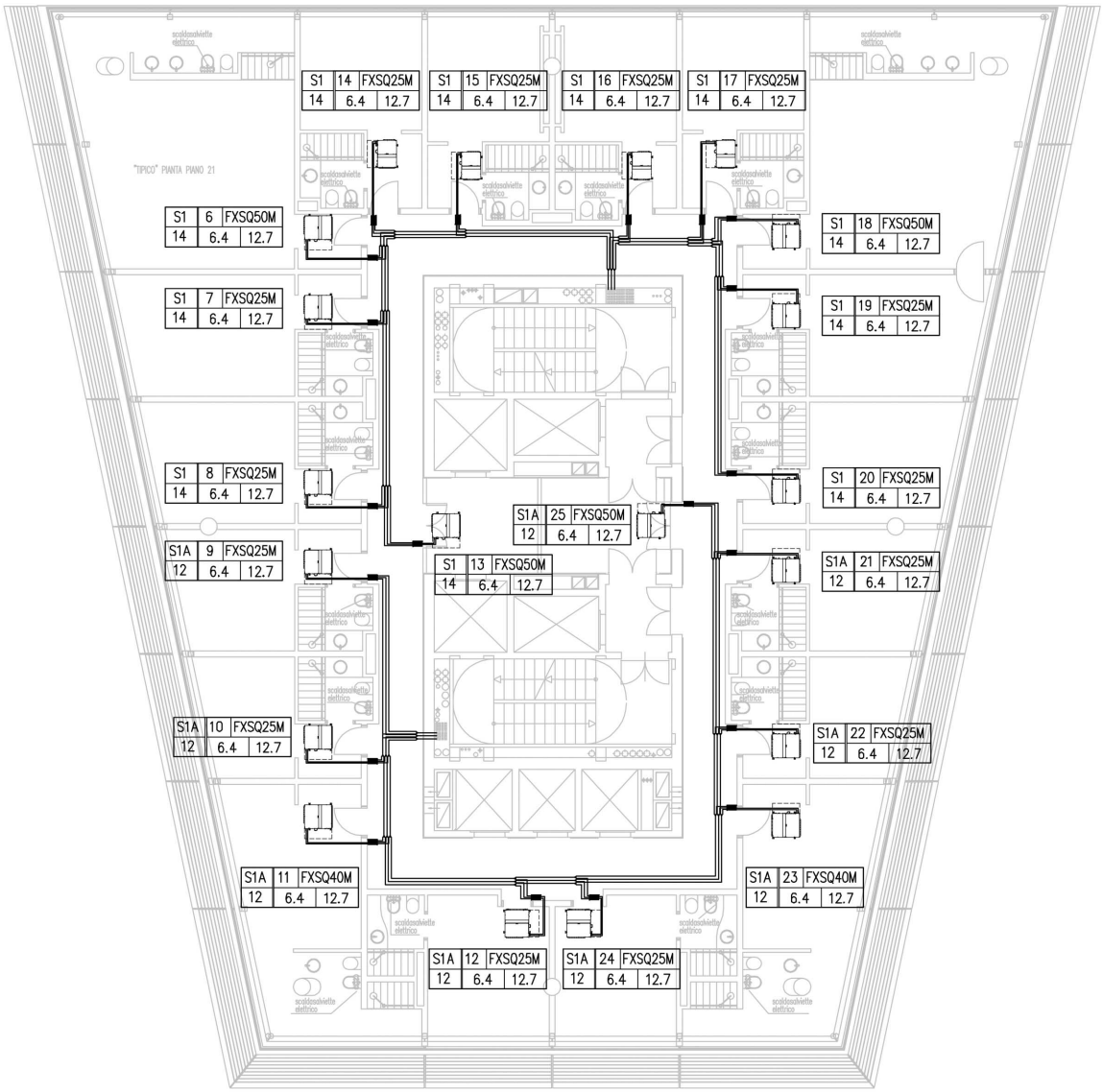


Fig-5 Acciaio Bldg. Hotel Typical Floor Plan

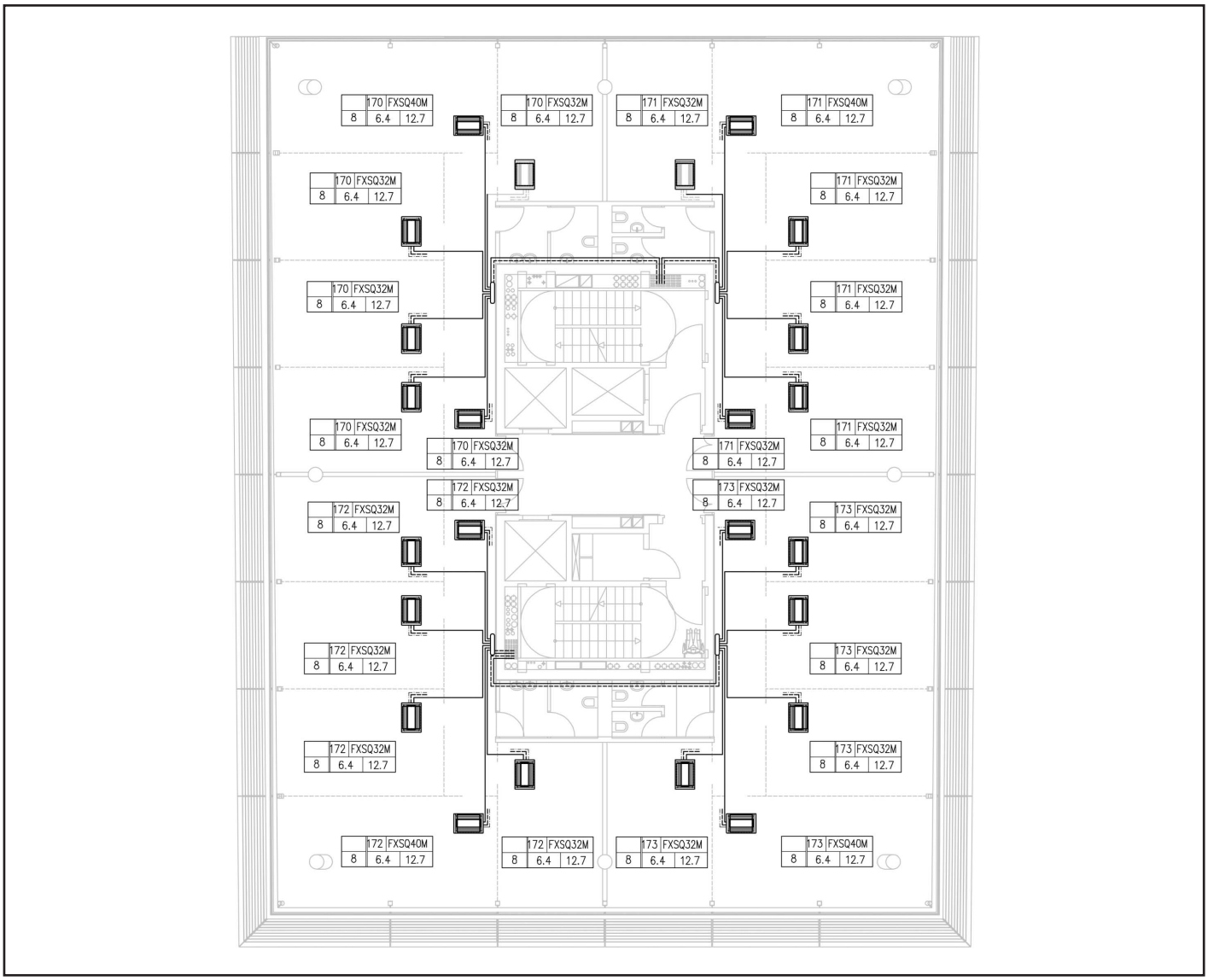


Fig-6 Acciaio Bldg. Office Typical Floor Plan

Project Commentary

The Net Center consists of three buildings, Tendenza, Acciaio, and Economia. Tendenza was built for the office and shopping spaces, Acciaio for use as offices and a hotel, and Economia for offices as well.

There were numerous demands from the client that we had to meet in order to win the project. These included ***low impact on the general building structure, space savings, high flexibility and compatibility, cost savings due to custom designed installation sequence, energy savings and environmental friendliness, independent AC systems for each tenant, an advanced control system, and reliability for keeping maintenance costs low. Daikin VRV provides the best solution for all of these requests thanks to its highly efficient DC inverter unit, using R410A refrigerant, and availability of BAC net gateway for BMS integration.***

In addition to the above demands, ***vertical requirement was another critical issue for the project,*** as all of the outdoor units would have to be installed on the top of the 72 m tower building in order to secure space for the parking lot. Consequently, ***the customised specifications of the Daikin VRV were able to provide the best solution to this challenging request and were one of the most important factors in acquiring this project.***

Procisa-Edificios de Oficinas Terciario La Finca

SPAIN

Project Outline

Location	Madrid, Spain
Number of floors	4F
Total floor area	Approximately 150,000 m²
Date of completion	2002

Equipment

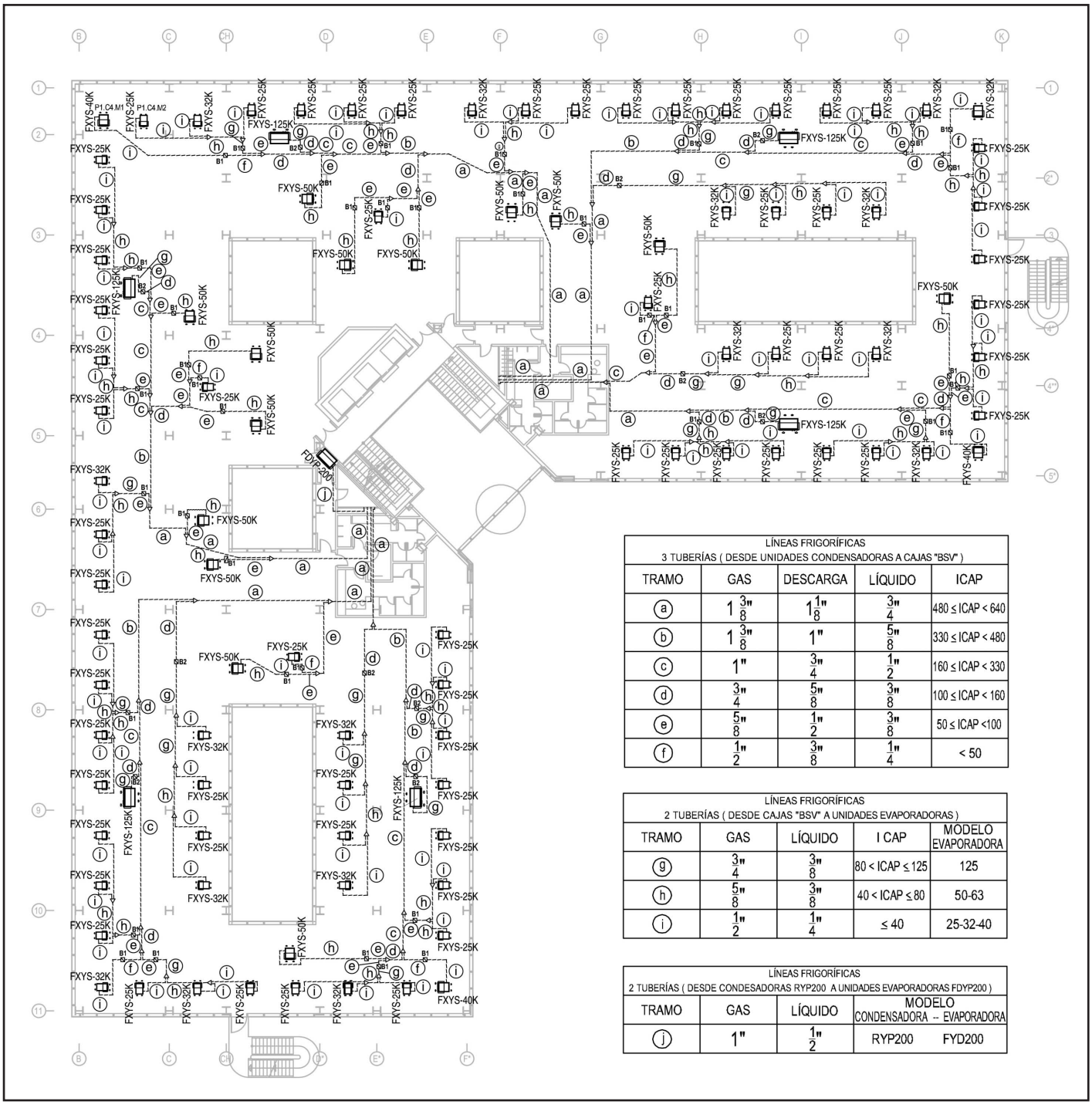
Outdoor units	RSEYP10 × 13	REYQ10 × 10	**Indoor units**	FXYSP25 × 1206	FXSQ32 × 478
	RSEYP18 × 4	REYQ12 × 4		FXYSP32 × 853	FXSQ40 × 201
	RSEYP20 × 125	REYQ14 × 2		FXYSP40 × 147	FXSQ50 × 181
	RSEYP24 × 15	REYQ20 × 38		FXYSP50 × 337	FXSQ63 × 3
	RSXYP5 × 1	REYQ22 × 22		FXYSP63 × 36	FXSQ80 × 6
	RSXYP8 × 1	REYQ24 × 13		FXYSP80 × 2	FXSQ100 × 10
	RSXYP10 × 2	REYQ26 × 4		FXYSP125 × 137	FXSQ125 × 76
	RSXYP16 × 1			FXSQ25 × 481	
Others	BRC1D52 × 4154				
	intelligent Manager × 18				

Procisa-Edificios de Oficinas Terciario La Finca

SPAIN

Design Drawing

The drawing shows indoor units, piping, and joint layout within a typical floor (fig-1). It also illustrates how the VRV system's flexibility allows the user to design and define zoning for optimum use.



LÍNEAS FRIGORÍFICAS
3 TUBERÍAS (DESDE UNIDADES CONDENSADORAS A CAJAS "BSV")

TRAMO	GAS	DESCARGA	LÍQUIDO	ICAP
ⓐ	1 3/8"	1 1/8"	3/4"	480 ≤ ICAP < 640
ⓑ	1 3/8"	1"	5/8"	330 ≤ ICAP < 480
ⓒ	1"	3/4"	1/2"	160 ≤ ICAP < 330
ⓓ	3/4"	5/8"	3/8"	100 ≤ ICAP < 160
ⓔ	5/8"	1/2"	3/8"	50 ≤ ICAP <100
ⓕ	1/2"	3/8"	1/4"	< 50

LÍNEAS FRIGORÍFICAS
2 TUBERÍAS (DESDE CAJAS "BSV" A UNIDADES EVAPORADORAS)

TRAMO	GAS	LÍQUIDO	I CAP	MODELO EVAPORADORA
ⓖ	3/4"	3/8"	80 < ICAP ≤ 125	125
ⓗ	5/8"	3/8"	40 < ICAP ≤ 80	50-63
ⓘ	1/2"	1/4"	≤ 40	25-32-40

LÍNEAS FRIGORÍFICAS
2 TUBERÍAS (DESDE CONDESADORAS RYP200 A UNIDADES EVAPORADORAS FDYP200)

TRAMO	GAS	LÍQUIDO	MODELO CONDENSADORA -- EVAPORADORA	
ⓙ	1"	1/2"	RYP200	FYD200

Fig-1 Typical Floor Plan

Project Commentary

La Finca is a huge business complex located in an upscale residential zone. Good access by road and train led to the complex being full by the time construction was completed. It was developed in two different phases, with the first phase finishing in 2002.
The total working space of the 18 buildings that form this complex is 150,000 m^2.
From the beginning, a flexible system that could operate in partial load and be individually controlled on different floors and buildings was required due to the owner's intention of renting the buildings. ***The VRV was chosen because it fit the requirements of flexibility and high efficiency in partial load, as well as for the advantage of being able to rent the different floors independently from others.***
The different conditions of the buildings made the Heat recovery system the most appropriate one in this application.
DAIKIN was chosen not only for its superior efficiency and flexibility but also for the services provided during pre-sales, which explained the advantages of the DAIKIN system and the most effective way to install it for maximum performance.
Outdoor units were installed on the roof of the buildings, leaving the necessary space for maintenance and optimum performance of the systems.
Individual control made the operation of the system through the indoor unit possible and allows the end user to change the settings for temperature, fan speed, ON/OFF, etc. 18 centralised I-Manager Controls were installed.This makes for effective air conditioning of the complex, as schedules can be determined to achieve maximum energy efficiency.

Hilton Hotel Manchester

UK

Project Outline

Location	Manchester, The United Kingdom
Number of floors	49F
Date of completion	August, 2006

Equipment

Outdoor units	RWEYQ10 × 35	**Indoor units**	FXDQ20/25 × 290
Others	BRC2A51		

Hilton Hotel Manchester

UK

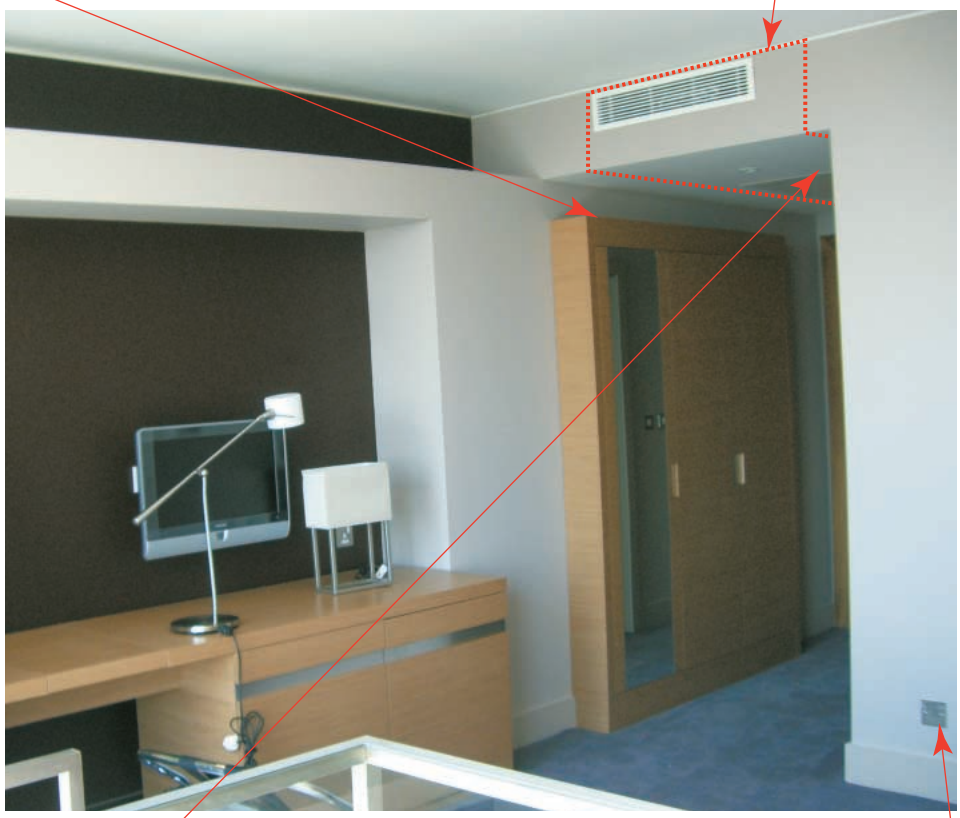
Indoor Unit Installation

■ In bedroom

This was a typical installation case for application in a hotel bedroom. As this was for residential and individual use, and not commercial use, higher specifications including good appearance, low sound, comfortable distribution and easy control were required.

Returning air intake for indoor unit is located above closet. Air passes across back wall and ceiling and reaches the unit. Grill is not located on ceiling in order to maintain an attractive appearance and to reduce cost.

A fresh air intake is located in the service space.



BS box is also installed in the service space. This equipment is covered with rubber material to decrease refrigerant flow sound.

Refrigerant detector is installed in lower corner of wall. When this sensor catches refrigerant, operation is stopped automatically.

Project Commentary

A Daikin water-cooled VRV-WII air conditioning system was selected for this project over a conventional chiller/LPHW-based 4-pipe fan coil system. ***The fan coil system did not meet Part 'L' carbon emission requirements and would have required a major redesign of the building. Also, the VRV-WII system provides the client with the added benefit of an enhanced capital allowance and its attendant savings in capital outlay.***

System control is provided via simplified room controllers interfaced through a LON gateway to the hotel's 'Fidelio' booking system. Three operating modes are available—'room not booked/unoccupied' with a wide band of control between 18 and 28°C; 'room booked' with a band width of 16 to 26°C; and 'room occupied' operating at a room controller set point of 22°C. Daikin was awarded the project for several reasons. These include: the smaller external footprint of the units; lower capital cost than would be required for four pipe fan coils; a high COP, which means lower running costs; two-stage heat recovery; lower CO_2 emissions; and adaptability to the hotel control system.

CHINA

CHINA

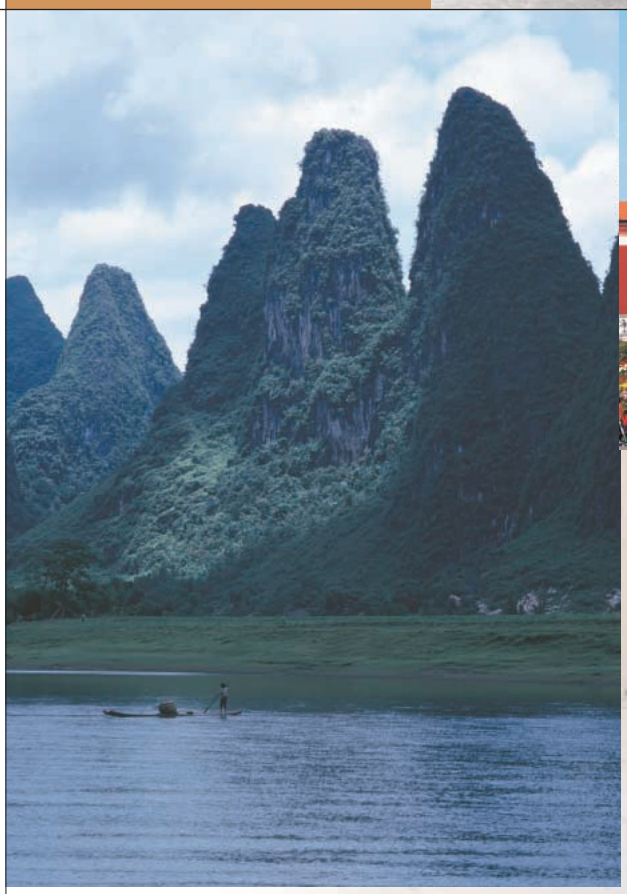
CHINA

Nantong Administration Centre, Jiangsu

New World Business Centre, Nanjing

Wenzhou Administration Centre,
Zhejiang Province

Xinhui International Building,
Zhujiang New Town




华人民共和国万岁
世界人民大团结万

Nantong Administration Centre, Jiangsu

CHINA

Project Outline

Location	Nantong, Jiangsu Province
Number of floors	19F
Total floor area	100,000 m²
Date of completion	December, 2003

Equipment

Outdoor units	RXY32M × 4 RXY30M × 9 RXY28M × 7 RXY26M × 4 RXY24M × 2 RXY20M × 33 RXY18M × 3 RXY16M × 5 RXY8M × 1	**Indoor units**	FXC × 267 FXF × 244 FXK × 153 FXS × 2 FXYB × 68
Others	HRV VAM500 × 24 VAM1000 × 9 VAM2000 × 37 intelligent Manager		

Nantong Administration Centre, Jiangsu

CHINA

Design Drawing

Shown below are the overall floor plan (fig-1), floor plans for the 1st and 2nd floors of the main building (fig-2, 3), and the floor plans for the 2nd and 3rd floors of the meeting centre (fig-4, 5). This project comprises eight buildings and one walkway: (1) the main building, (2) meeting centre, (3) annex 1, (4) annex 2, (5) annex 3, (6) annex 4, (7) documents centre, (8) dining centre, and (9) main walkway. 2-way and 4-way blow ceiling-mounted cassette type units were used for the indoor units of the main building. A total heat exchanger was used for ventilation. For the meeting centre as well, 2-way and 4-way blow ceiling-mounted cassette type units were used for the indoor units, and a total heat exchanger was used for ventilation, as in the main building.

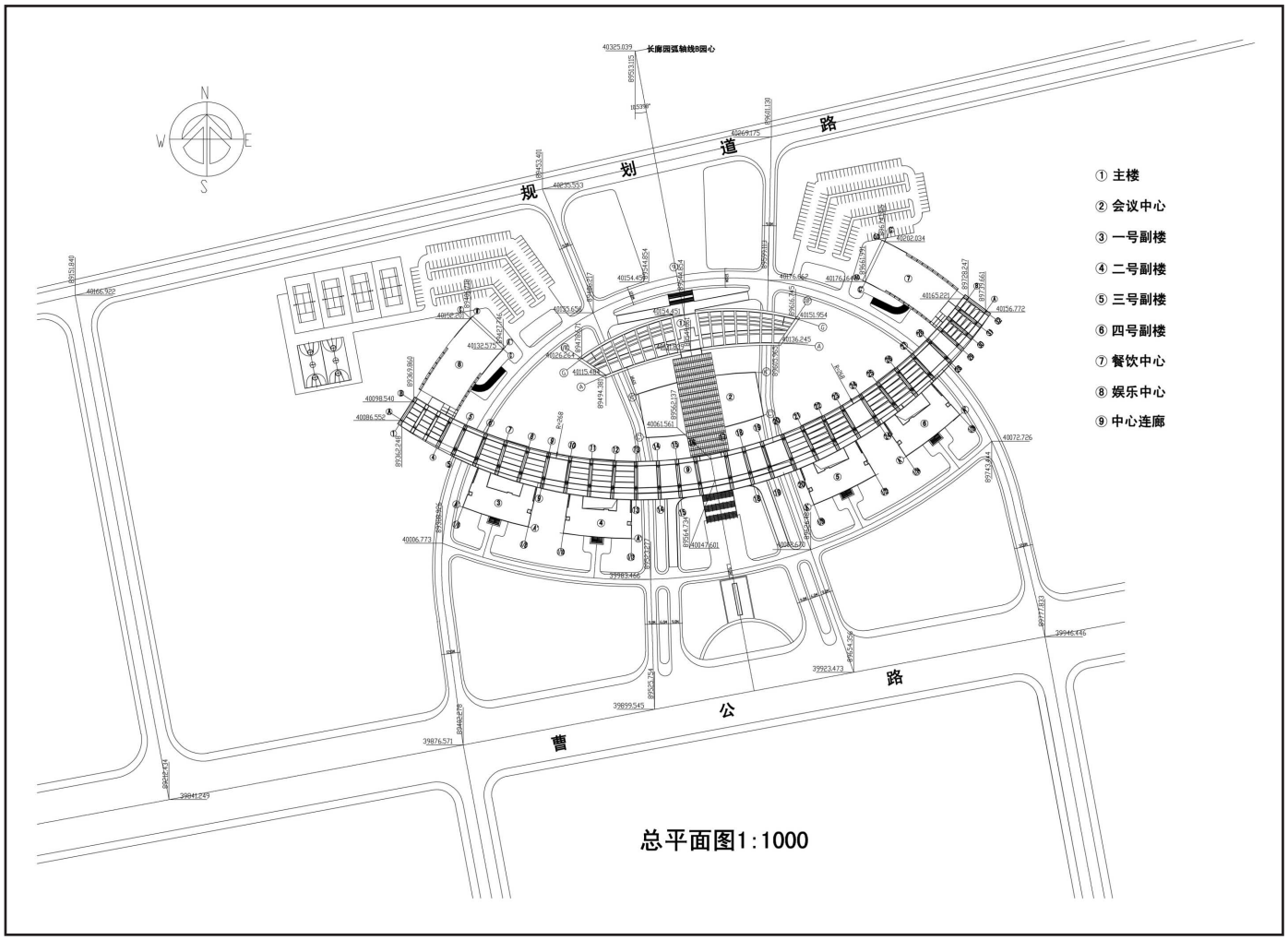


Fig-1 Overall Floor Plan

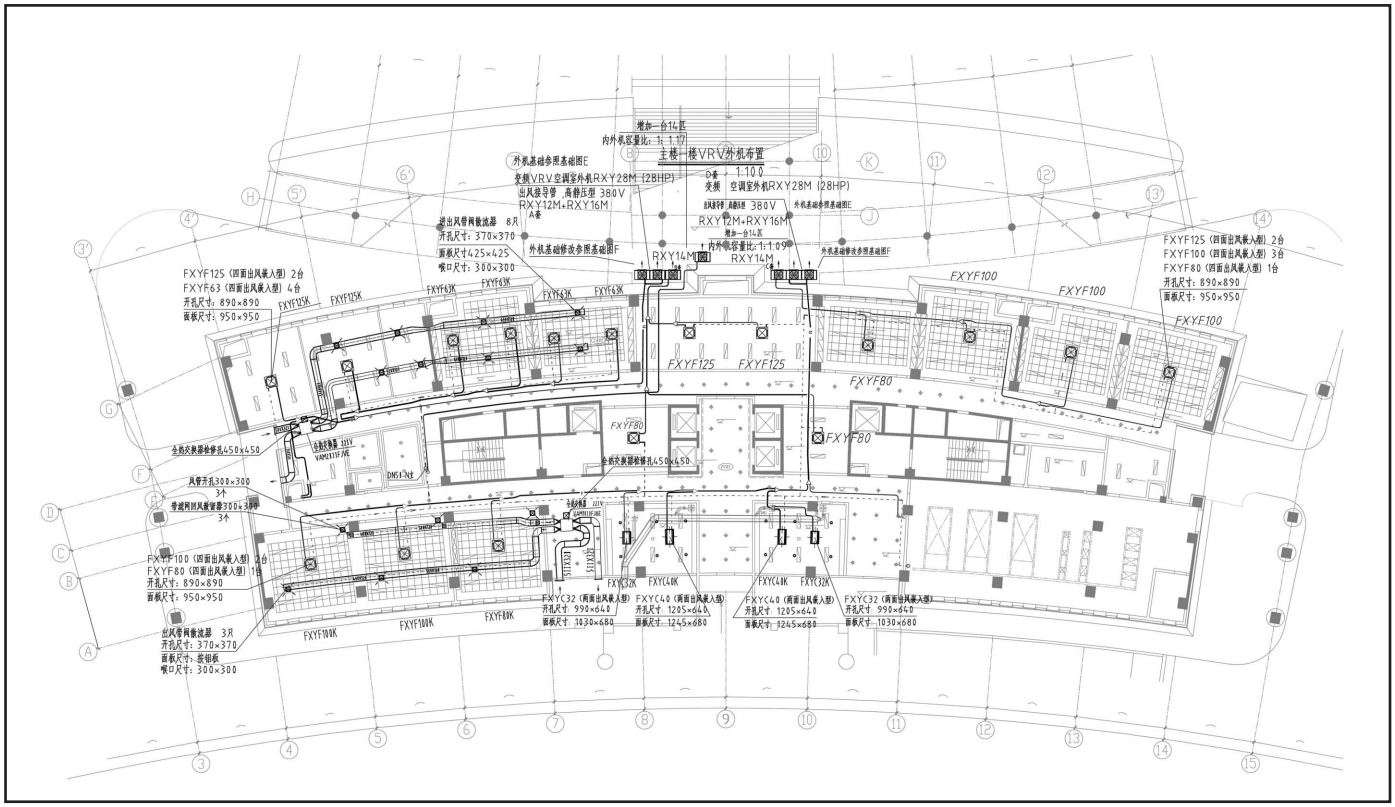


Fig-2 1st Floor Plan (Main Building)

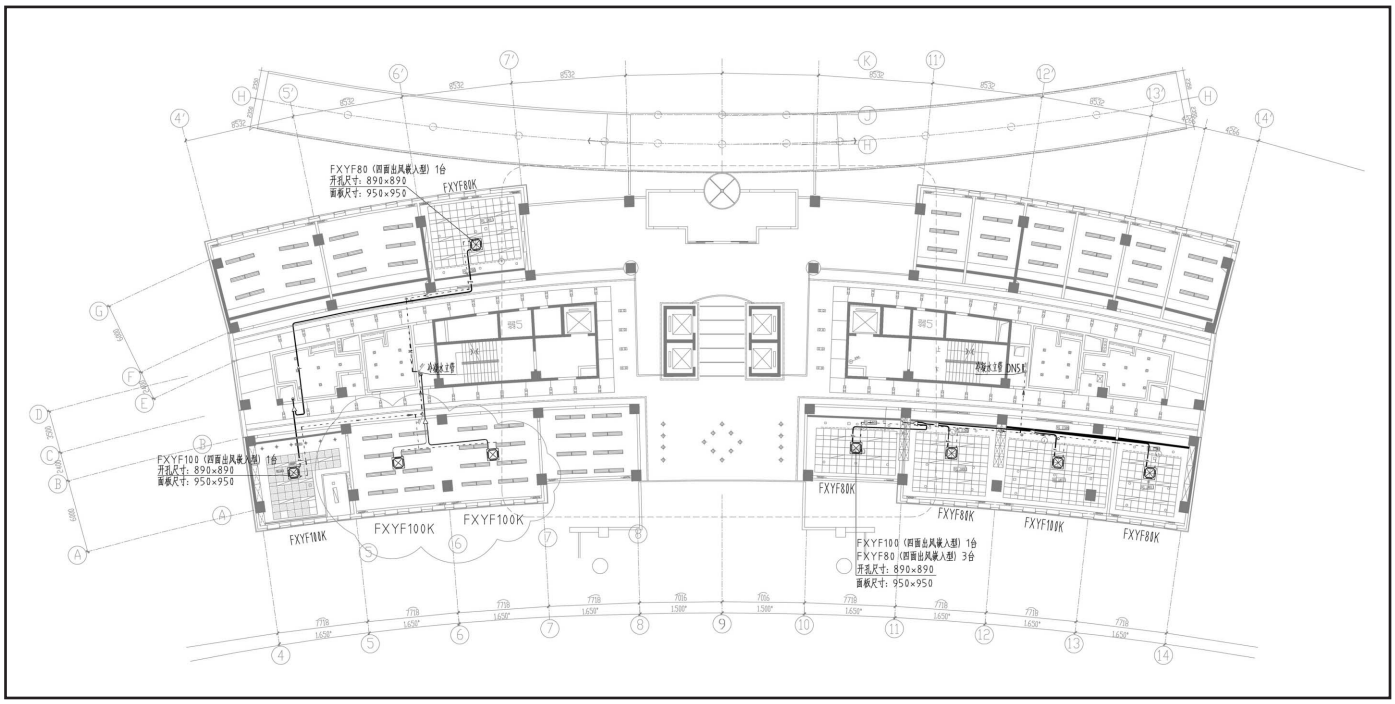


Fig-3 2nd Floor Plan (Main Building)

Nantong Administration Centre, Jiangsu

CHINA

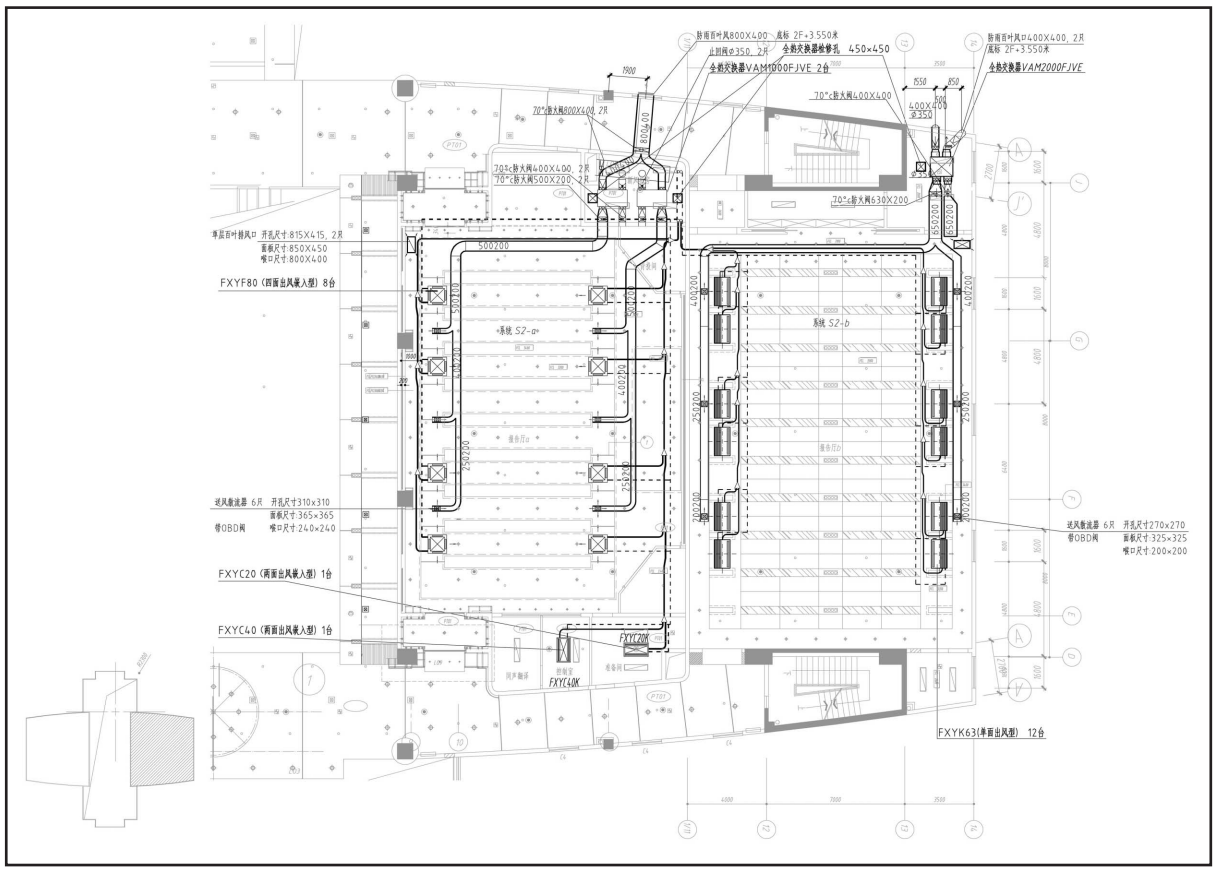


Fig-4 2nd Floor Plan (Meeting Centre)

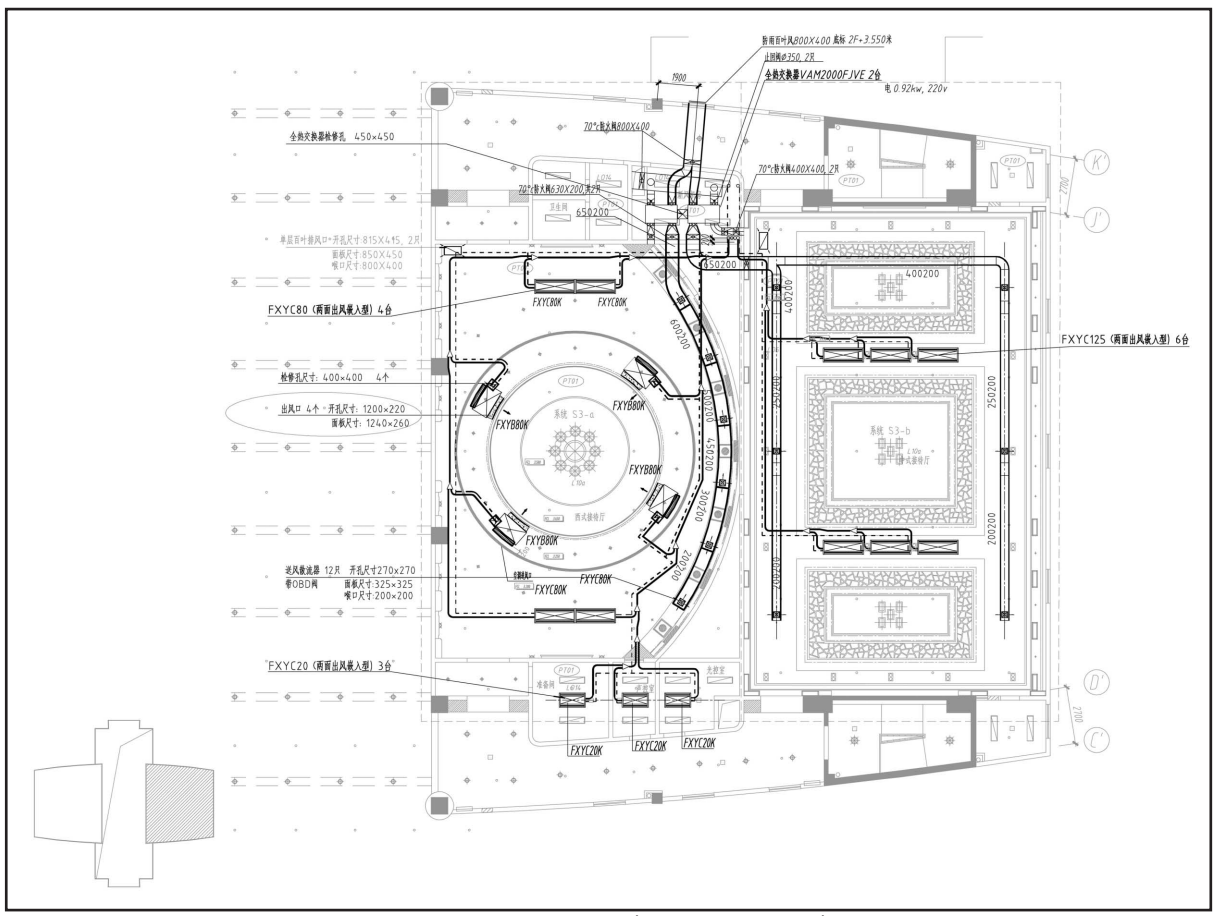


Fig-5 3rd Floor Plan (Meeting Centre)

Project Commentary

The Administration Buildings of Nantong City have a total floor area of approximately 16,000 m². They comprise a 19-storey main building, four 5-storey annexes, a 3-storey meeting centre, a 4-storey documents centre, and a 4-storey dining centre. Each of the eight buildings stands independently, and they are connected by covered walkways. The buildings' engineering systems were complex and construction conditions were very strict. The buildings' heating/cooling and ventilation systems required a comprehensive air conditioning system that included multiple air conditioners, air-cooled heat pumps, water-cooled chillers, rooftop heat pumps, and constant temperature and humidity controllers.
VRV systems were installed primarily in the executive offices, reception rooms, and meeting rooms on both the east and west sides of the main building; in the executive offices and VIP meeting room of the 4-storey annex; in the VIP meeting room and dining cafeteria of the meeting centre; and in the offices of the documents centre. Thirty-six sets of Daikin VRV 1600-horsepower total heat exchangers were used, along with a single IM-1024 i-manager intelligent control system.
Indoor units included 4-way blow ceiling-mounted units, 2-way blow corner-mounted units, and duct-connected units to create the best interior arrangements. Outdoor units for the main building were located in utility rooms on floors 3-19, and on the rooftops of the other buildings.
After two years in operation, the owners have been able to compare many types of multi-function air conditioning systems used at the same time. They rated Daikin's VRV system higher than the air conditioning systems of other manufacturers for reliability, ease of maintenance, and ease of operation. In each area, the owners were satisfied with the superior performance of the Daikin systems.

Because the working area for this project was so large and there were so many areas that interior construction firms were working on, in most cases both interior construction and air conditioning construction were completed simultaneously.
Because of the strict demands in terms of visual appearance, unique installation methods were employed for the Daikin VRV systems, including the use of two double-flow ceiling-mounted units installed symmetrically to incorporate the air conditioning seamlessly into the ceiling of a Chinese-style reception room.
Installation of the outdoor units had to be hidden, so the units were installed under the building trusses, and the length of the main pipe had to be over 40 metres. Proper performance of the air conditioners was achieved thanks to the long pipe design of Daikin's VRV system.
Because the outdoor units of the main building were placed in the utility room on each floor, the owners were concerned about short circuits in the outdoor units, but this problem was avoided thanks to Daikin's high static pressure fan design, and the system demonstrated superb performance in actual use.

Many types of air conditioners were used for this project. In addition to VRV, the equipment included: air-cooled heat pumps, centrifugal chillers, gas turbines, rooftop units, air conditioners for computer rooms, and constant temperature- and humidity-controlling air conditioners for the document rooms. Owners gave higher ratings to the Daikin air conditioners than to other brands for their operability.
The use of Daikin's VRV intelligent control system (i-manager) provides a control interface with a clear display and good functionality, and is more convenient than other air conditioners that use BA control developed by a software firm. It also is easy to use, has many options for control and monitoring, and helps to reduce labour costs by allowing operation using fewer building management firm superintendents.
Starting and stopping equipment operation is easy, as is switching from heating to cooling and vice versa.
It requires no specialists, thereby helping to reduce management costs.

New World Business Centre, Nanjing

CHINA

Project Outline

Location	Nanjing, Jiangsu Province
Number of floors	44F
Total floor area	70,000 m²
Date of completion	May, 2005






Equipment

Outdoor units	RHXY18MY1 × 7	**Indoor units**	FXYF100KBMVL × 85
	RHXY20MY1 × 1		FXYF80KBMVL × 170
	RHXY16MY1 × 14		FXYF63 KBMVL × 34
	RXY20MY1 × 51		FXYF50 KBMVL × 34
			FXYC20 × 34
			FXS63LVE3 × 14
			FXS40LVE 3 × 84
			FXS50LVE3 × 28

New World Business Centre, Nanjing

CHINA

Design Drawing

Shown below are the floor plan and schematic diagram for floors 8-25F (fig-1 to 3).
Outdoor units were placed on each floor from 8-25F and on the rooftop in a cluster for floors 26-44F.
For the indoor units, ceiling-mounted cassette type (4-way blow) units were used on floors 8-25F and built-in units on floors 26-44F.

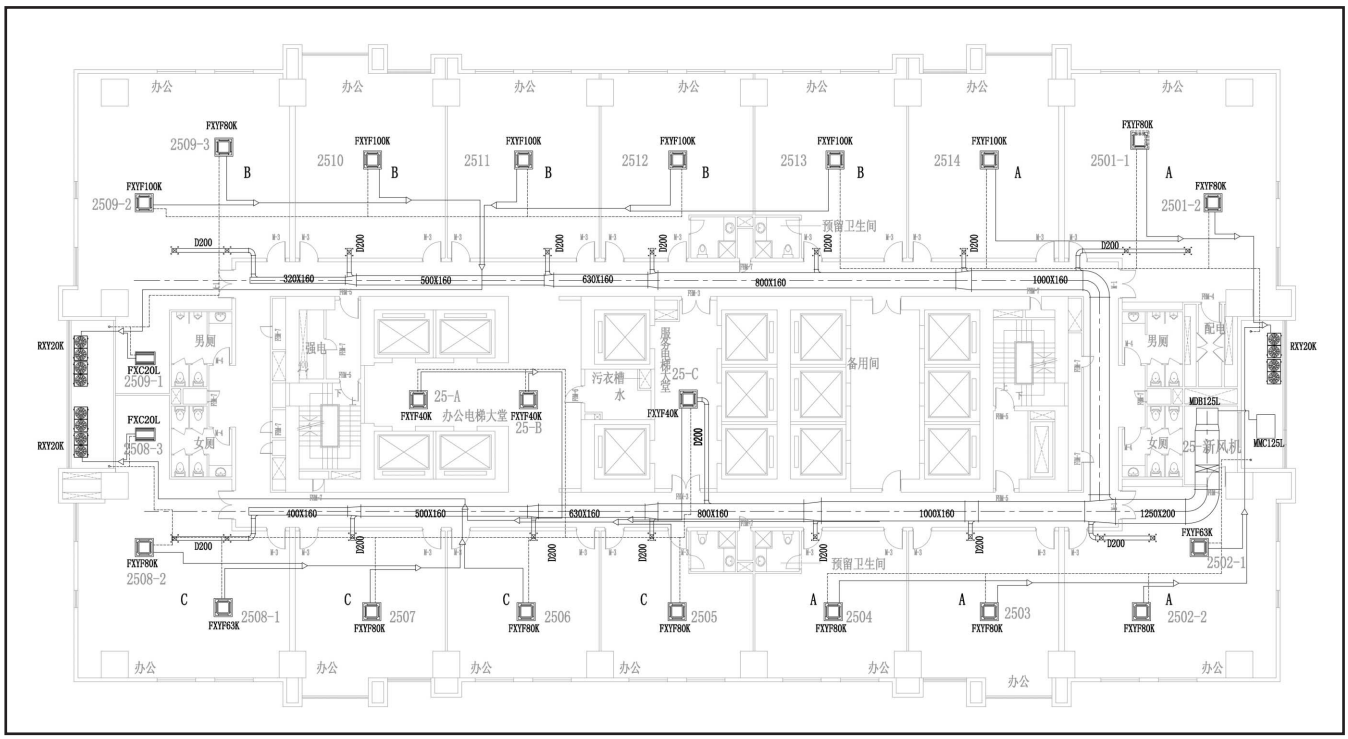


Fig-1 Floor Plan (8-25F)

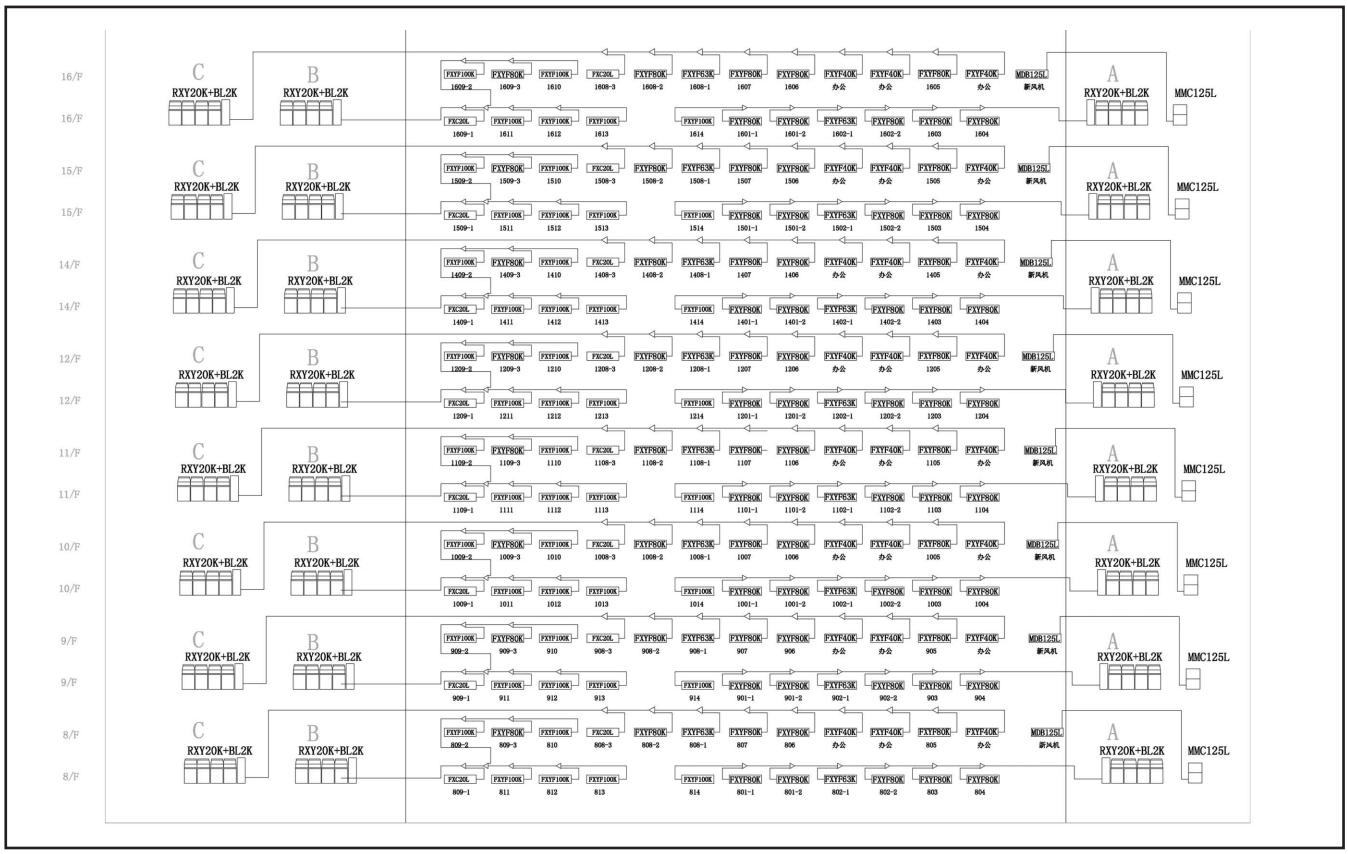


Fig-2 Schematic Diagram (8-16F)

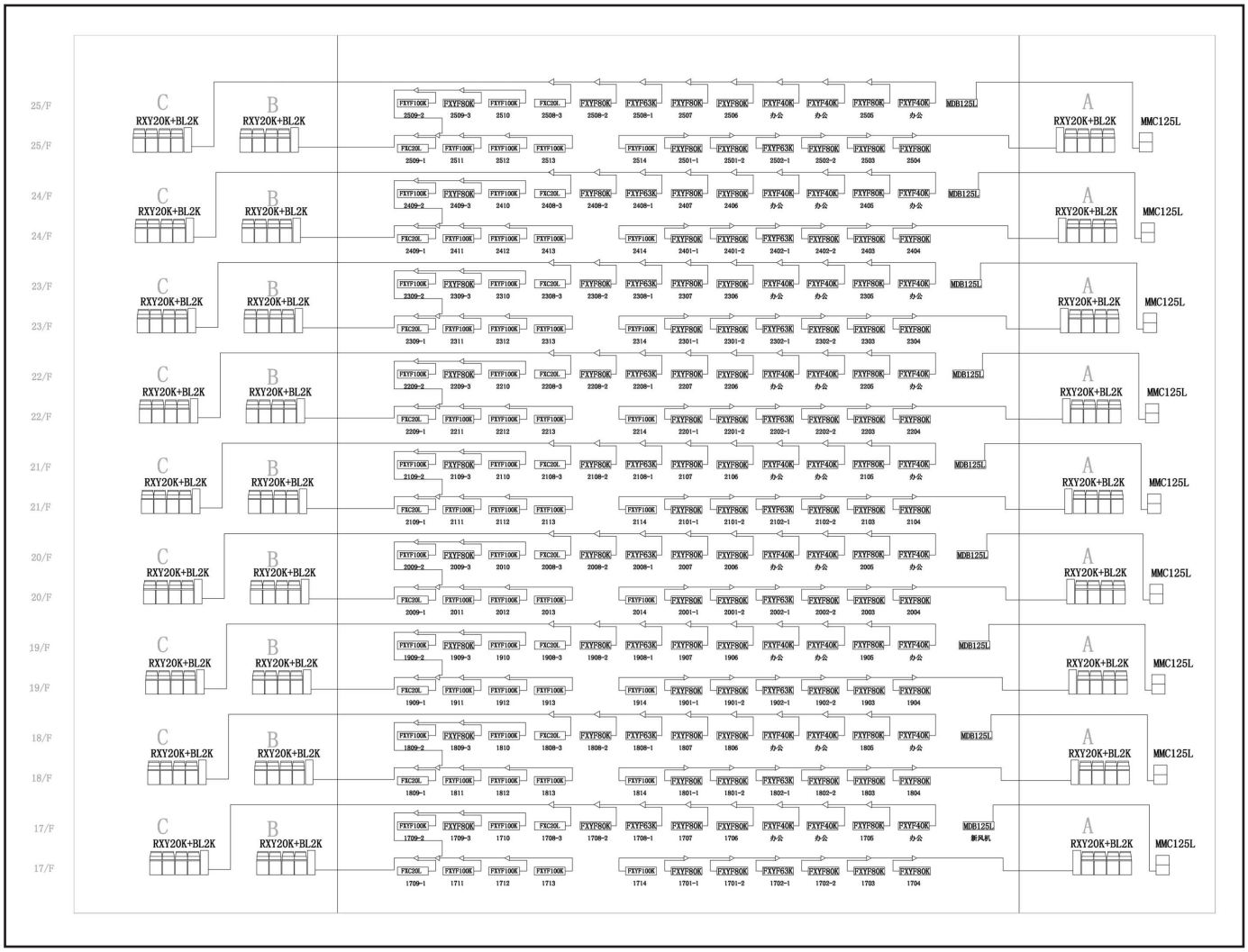


Fig-3 Schematic Diagram (17-25F)

Project Commentary

In the follow-up to this project, a representative from the sales company gave a small project tour to a group of people related to the owners, at which time he listed and explained the ways in which Daikin products were superior to competing products, emphasising the professional expertise of Daikin in air conditioning systems. At the time of the final bid, Daikin's level of technological advancement won out over a large number of competitors and resulted in a winning bid.

The use of Daikin products made it possible for the owners to calculate their electricity bills separately, and easily manage after-hours work and set up units by floor for easy maintenance and management.

This project involved installations in Tower A and Tower B, with VRV installations on floors 8-44F in Tower A.

Wenzhou Administration Centre, Zhejiang Province

CHINA

Project Outline

Location	Wenzhou, Zhejiang Province
Number of floors	21F
Total floor area	100,000 m²
Date of completion	October, 2004

Equipment

Outdoor units	RXY30MY × 3 RXY28MY × 4 RXY26MY × 4 RXY24MY × 1 RXY22MY × 5 RXY20MY × 5 RXY18MY × 4 RXY16MY × 11 RXY14MY × 2 RXY12MY × 7 RXY10MY × 107 RXY8MY × 56	**Indoor units**	FXCQ20MVE × 8 FXCQ25MVE × 477 FXCQ32MVE × 693 FXCQ40MVE × 9 FXCQ50MVE × 17 FXCQ63MVE × 66 FXCQ80MVE × 8 FXSQ32MVE × 74 FXSQ40MVE × 39 FXSQ50MVE × 4 FXSQ63MVE × 12 FXFQ25MVE × 23 FXFQ32MVE × 46 FXFQ40MVE × 118 FXFQ50MVE × 210 FXFQ63MVE × 30 FXFQ80MVE × 16 FXFQ100MVE × 6 FXFQ125MVE × 13 FXKQ63MVE × 2 FXMQ63MVE × 2
Others	intelligent Manager		

Wenzhou Administration Centre, Zhejiang Province

CHINA

Design Drawing

Shown below is the floor plan for the 3rd floor (fig-1).
Ceiling-mounted cassette type (2-way and 4-way blow) units were used for the indoor units.

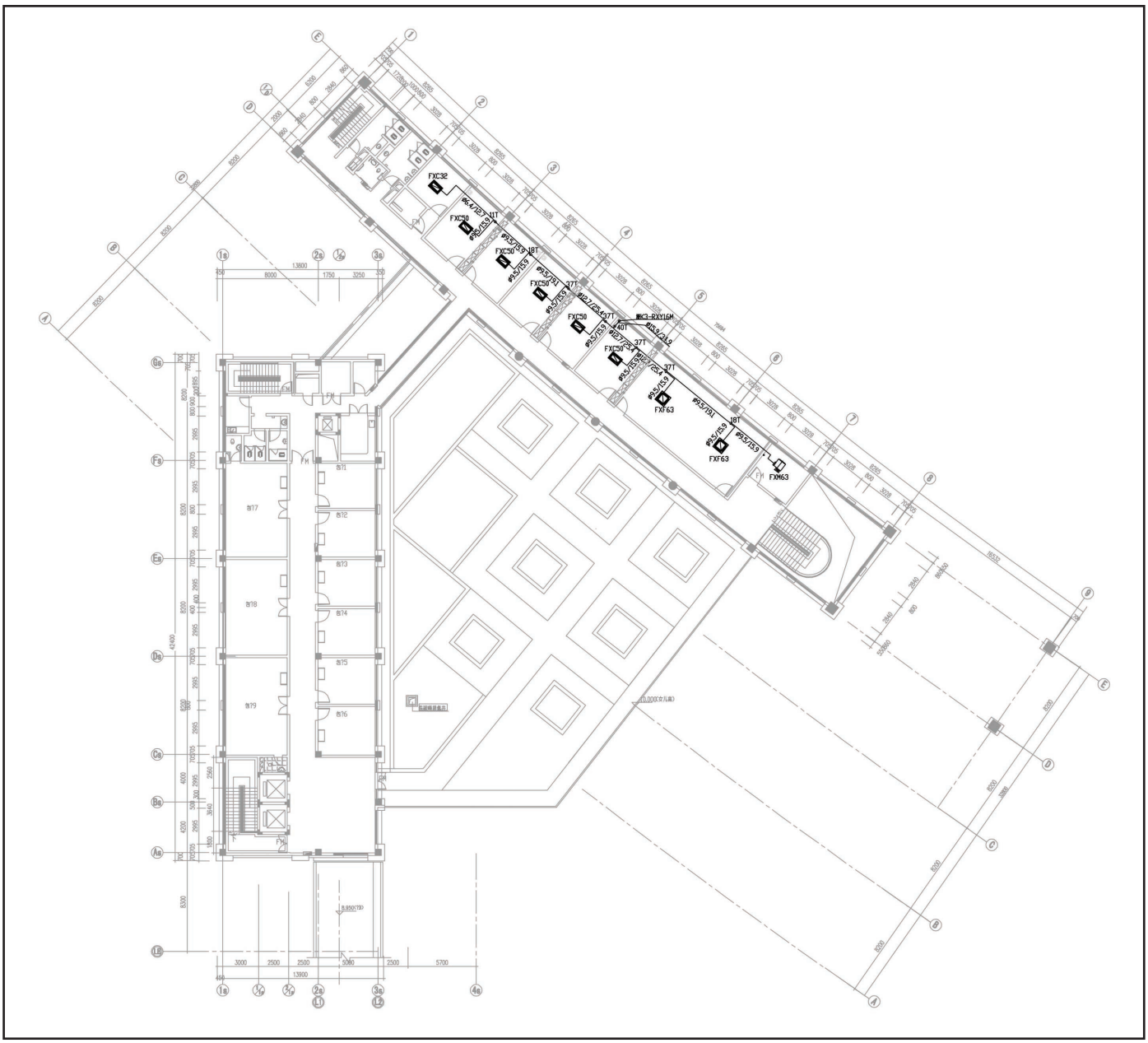


Fig-1 3rd Floor Plan

Project Commentary

The government administration centre of Wenzhou City is comprised of three buildings. In the centre is the City Hall and on each side stands an office building, one for the Standing Committee of the Wenzhou People's Congress Council and the other for the Polity Conference. The total floor area is over 100,000 m^2. The scale of this project was very large, making it the largest project involving the use of a VRV system for a government-related office building. Another VRV manufacturer was being looked at closely from the start. ***To get the order for the project, Daikin China had to begin with sales directed at the province's design office, then design a plan for the use of Daikin air conditioners, and get the owners to see the value in the Daikin brand. In the end, everyone assented to the use of the Daikin VRV system.***

Daikin won the order for the largest government office building project in Zhejiang Province.

Xinhui International Building, Zhujiang New Town

CHINA

Project Outline

Location	Guangzhou
Number of floors	28F
Total floor area	66,000 m²
Date of completion	2006

Equipment

Outdoor units	RY250	× 48	**Indoor units**	FHYB125	× 82
	RY200	× 41		FHYB71	× 131
	RY71	× 4		FXS100	× 40
	RHXY16MY1	× 20		FXD63	× 61
	RHXY14MY1	× 20		FXD50	× 206
	RHXY12MY1	× 2		FXD40	× 7
				FXD25	× 1
				FXD20	× 1
Others	HRV VAM500 × 1				

Xinhui International Building, Zhujiang New Town

CHINA

Design Drawing

Shown below is the typical floor plan (fig-1).
Outdoor units were installed on each floor, and duct type indoor units were used. In addition, four booster fans were installed for air intake at the outdoor unit installation site.

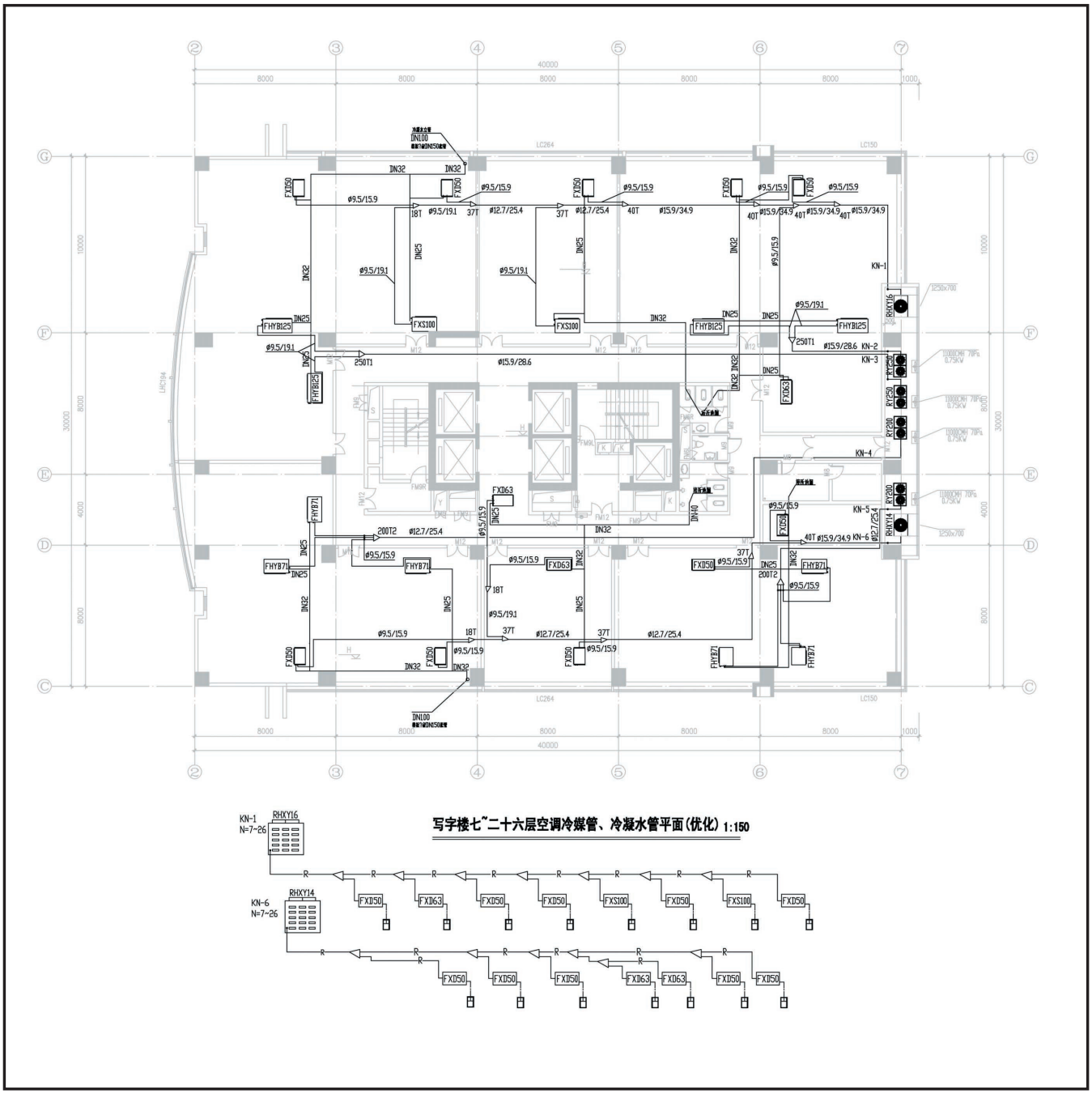


Fig-1 Typical Floor Plan

Project Commentary

The land developer for this property used Daikin's Sky Free, VRV Plus, SkyAir, and Super Multi series of air conditioning products for the large office building in which it had invested in 2002. When it sold each office space, the developer emphasised the many convenient features to the potential buyers. In less than three months, all of the offices had been sold. This was an extremely rare occurrence in a market environment experiencing a supply glut in office buildings. The land developer felt that Daikin products had a promotional effect on sales.
The land developer purchased the building site, located in Guangzhou's CBD (Central Business District), from the government several years ago. For some time after buying the land, the developer had no construction plans, but after the success of the above-mentioned large office building, the construction plan was finally launched.
In 2004, Daikin's air conditioner sales agent had extensive discussions with the land developer through its divisions in charge of air conditioning installations. The agent's design division selected the air conditioning systems and designed an installation plan. Daikin China's No. 1 Sales section also provided strong backup by working hard to maintain communication with the province's design office. It also made the construction plan technically feasible, and recommended to the land developer the use of an i-manager system and electricity calculating function.
After the bid was won, the province's design office did not approve Daikin China's construction plan to lessen the quantity of work at first. But going with the plan proposed by the province's design office would have led to serious problems, so Daikin China's sales engineering and engineering sections provided extensive technical verifications and carried out numerous tests, and proffered a written application of technical document to the land developer. Daikin China's construction plan was finally approved by the province's design office, and potential trouble due to faulty equipment deployment or installation was avoided.

Brand merit raised the grade of the office building. Because a wide range of outdoor units were employed, VRV systems were used for large spaces in which some of the units can be used at the same time, leading to cost reductions. Since the installation space for the outdoor units was limited, the system was able to save space.
An i-manager system was employed to optimise resources through centralised control and properly manage the air conditioning system for a modern office building.

ASIA

Nan Lian Garden
HONG KONG

Axa Business Services, Bangalore
BMC Software India Pvt. Ltd.
Covansys India Pvt. Limited
Persistent Systems Pvt. Ltd.
INDIA

Hyundai Department
KOREA

National Taiwan University of Science and Technology
The Art Plaza
Yunlai Monastery, Dharma Drum Mountain
TAIWAN

Taniya Plaza Building
THAILAND

Vinaline-Ocean Park
VIETNAM

Nan Lian Garden

HONG KONG

Project Outline

Location	Hong Kong, China
Number of floors	Varies by location
Total floor area	35,000 m²
Date of completion	August, 2006

Equipment

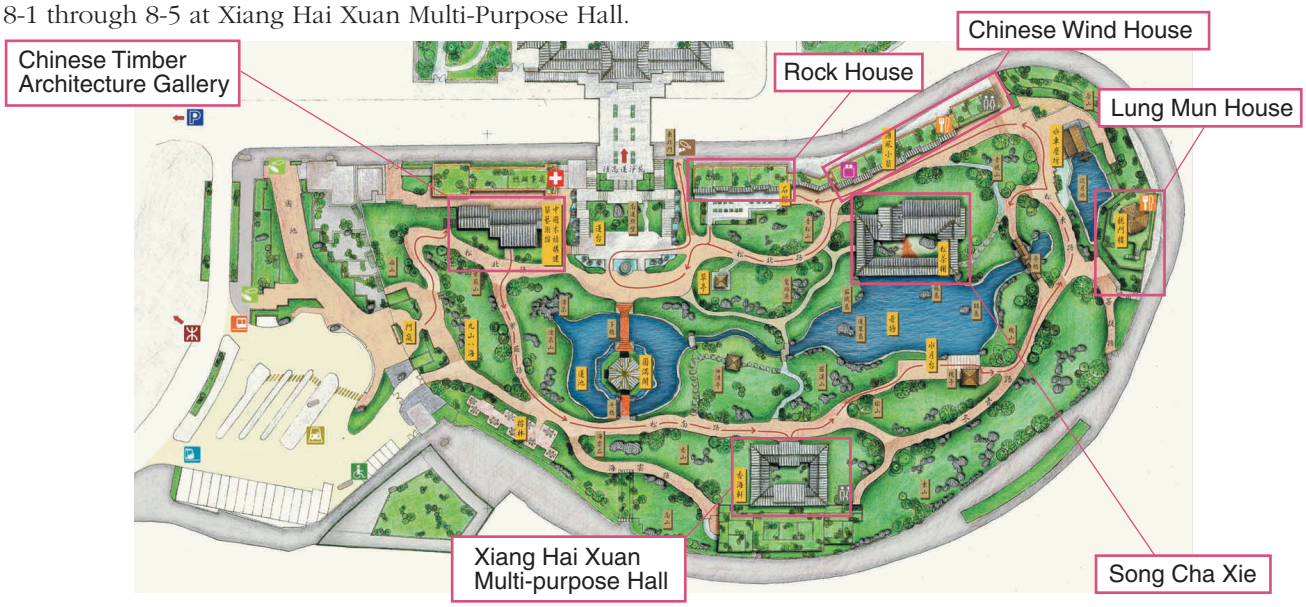
Outdoor units	RXYQ5MY1B × 4 RXYQ8MY1B × 12 RXYQ10MY1B × 17 RXYQ14MY1B × 3 RXYQ16MY1B × 4	**Indoor units**	FXMQ40MVE × 3 FXMQ100MVE × 1 FXMQ125MFV1 × 5 FXMQ200MFV1 × 7 FXMQ250MFV1 × 4 FXMQ250MVE × 4 FXAQ20MVE × 3 FXAQ25MVE × 2 FXNQ63MVE × 25
			FXSQ25MVE × 2 FXSQ32MVE × 2 FXSQ40MVE × 1 FXSQ50MVE × 7 FXSQ63MVE × 4 FXSQ80MVE × 16 FXSQ100MVE × 7 FXSQ125MVE × 10
Others	DCS302B61 × 15 DMS502A51 × 2		

Nan Lian Garden

HONG KONG

Design Drawing

Shown below are the master plot plan, the floor plans for Chinese Wind House (fig-1) and Rock House (fig-2), and piping schematic diagram for each building (fig-3). Ceiling-mounted units were used at Rock House and Chinese Wind House. The piping schematic diagram shows (from top to bottom): outdoor units 3-1, 2 at Rock House; outdoor units 4-1, 2 at Chinese Wind House; outdoor units 2-1 through 2-4 and 1-1, 2 at Chinese Timber Architecture Gallery; outdoor units 6-1 through 6-4 at Song Cha Xie; outdoor units 7-1 through 7-11 at Lung Mun House; and outdoor units 8-1 through 8-5 at Xiang Hai Xuan Multi-Purpose Hall.



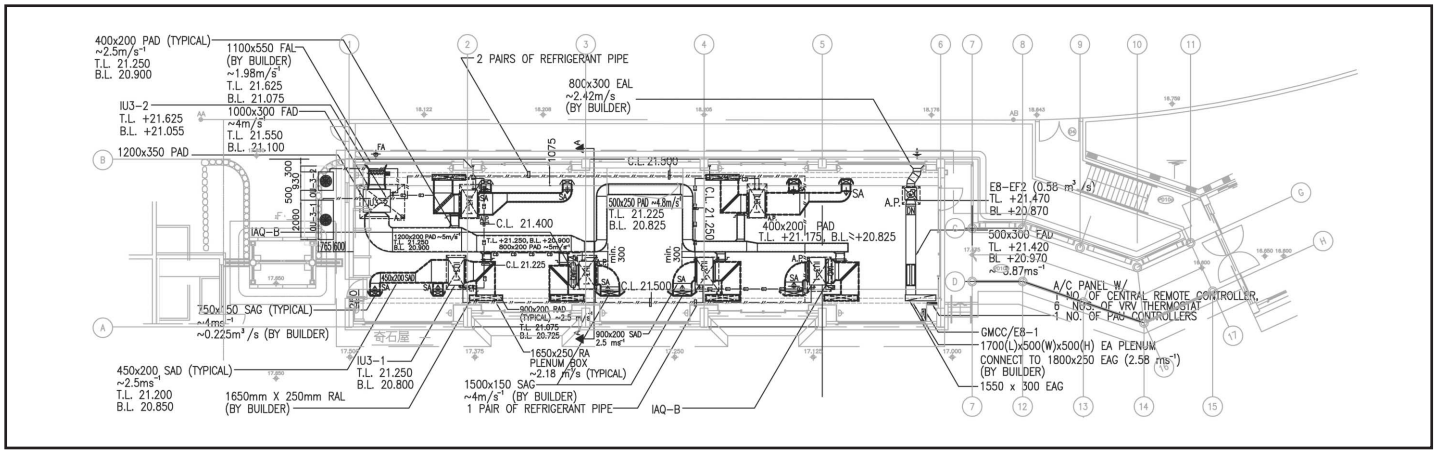


Fig-1 Floor Plan (Chinese Wind House)

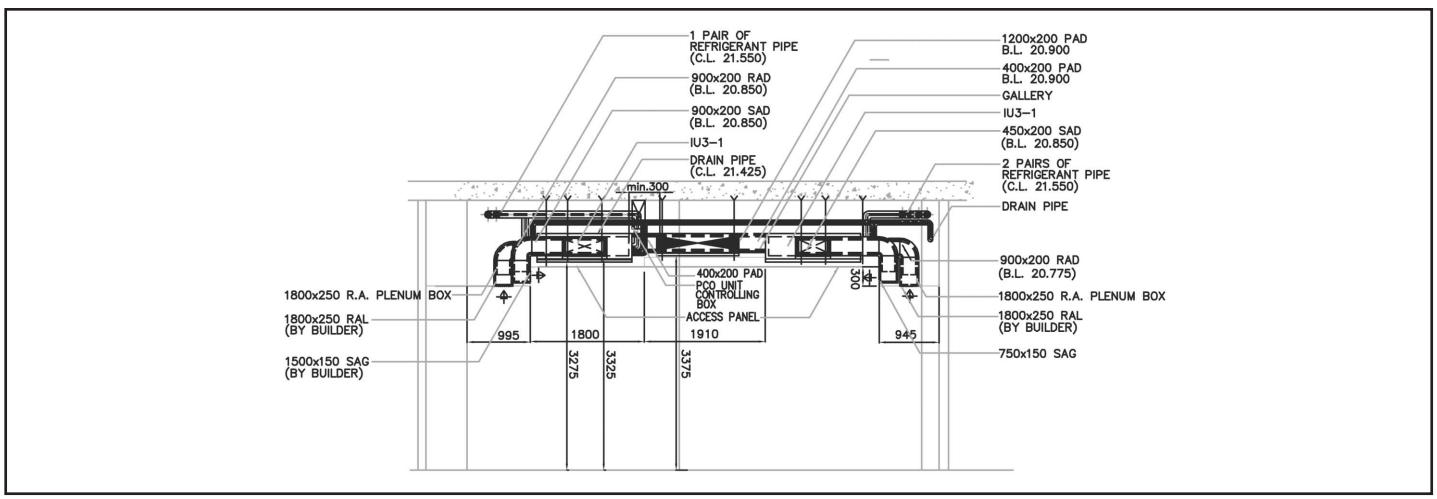


Fig-1 Floor Plan (Rock House)

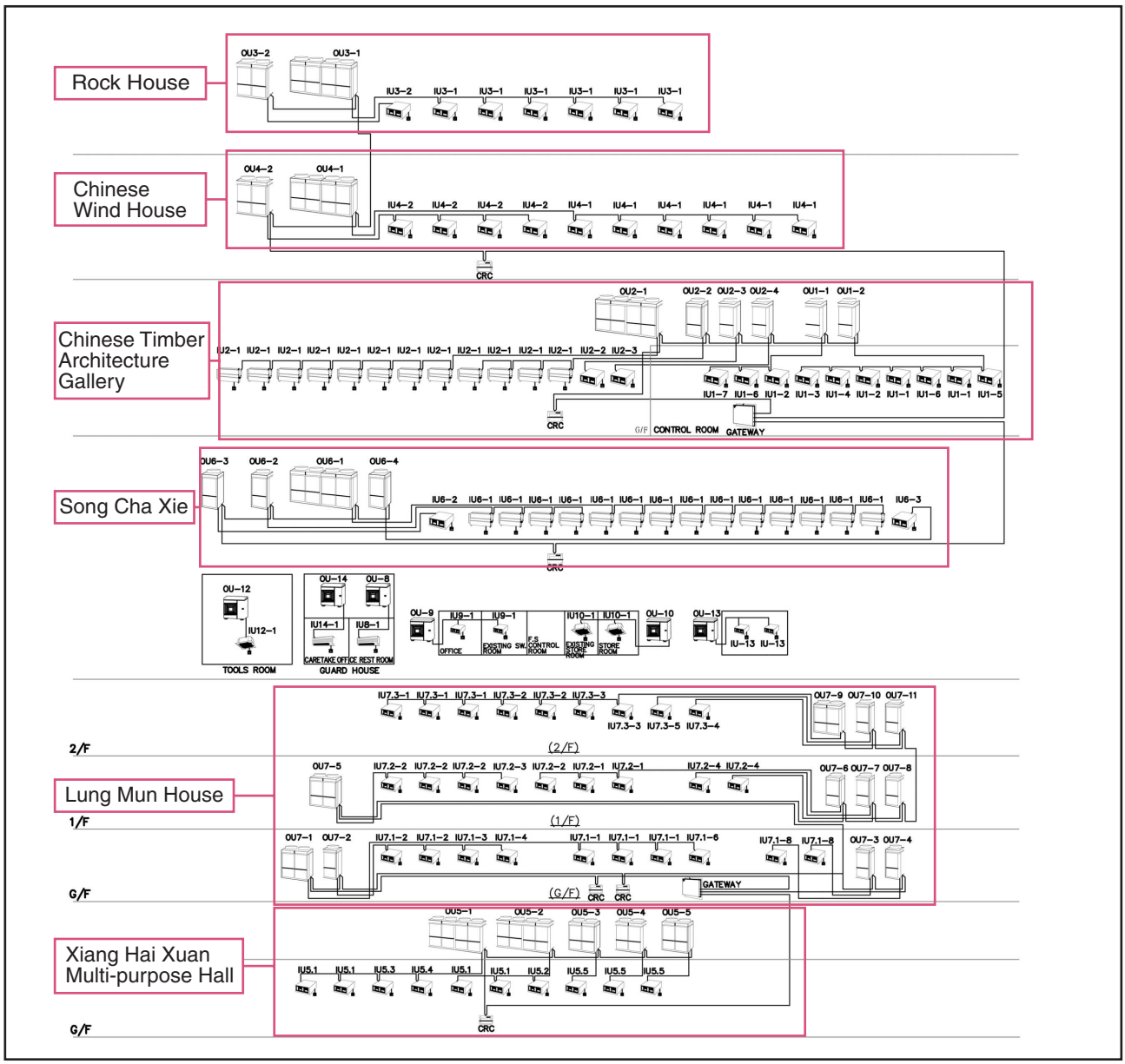


Fig-3 Piping Schematic Diagram

Project Commentary

When the project design started in 2003, the R22 was dominant in the Hong Kong marketplace, but for environmental reasons, the developer requested new refrigerants for all air conditioning systems, including the VRV, Sky-Air and even Split Unit.

Some of the VRV indoor units are concealed floor-standing types, so visitors can feel the air conditioning but cannot figure out where the units are installed. In addition, these types of design do not affect the original Chinese traditional-style interior design.

Long piping, a high outdoor unit capacity and advanced control systems were the reasons that the VRV system was chosen.

Since a BACnet Gateway was used but the A/C units were located throughout the Park, it was very difficult to connect the A/C units to the Gateway. As a result, part of the control wiring was run underground between the buildings.

Axa Business Services, Bangalore

INDIA

Project Outline

Location	Bangalore, India
Number of floors	5F
Total floor area	12,945 m²
Date of completion	January, 2006

Equipment

Outdoor units	RXY48MY1 × 12 RXY32MY1 × 2	**Indoor units**	FXF125LVE × 9 FXF100LVE × 72 FXF80LVE × 39 FXF63LVE × 49 FXF50LVE × 31 FXF40LVE × 5 FXF32LVE × 18 FXF25LVE × 5 FXDQ50NVE × 2 FXM250LVE × 1 FXM200LVE × 9 FXM125LVE × 2 FXAQ25NVE × 6 FXA25LVE × 20 FXA32LVE × 6 FXA50LVE × 3 FXA63LVE × 3
Others	intelligent Manager		

Axa Business Services, Bangalore

INDIA

Design Drawing

Shown below is the floor plan for the 3rd floor (fig-1).
For the indoor units, 4-way blow ceiling-mounted cassette type units were installed, with OA fans for the indoor unit air intake. Three 48 HP outdoor units were installed on the balcony.

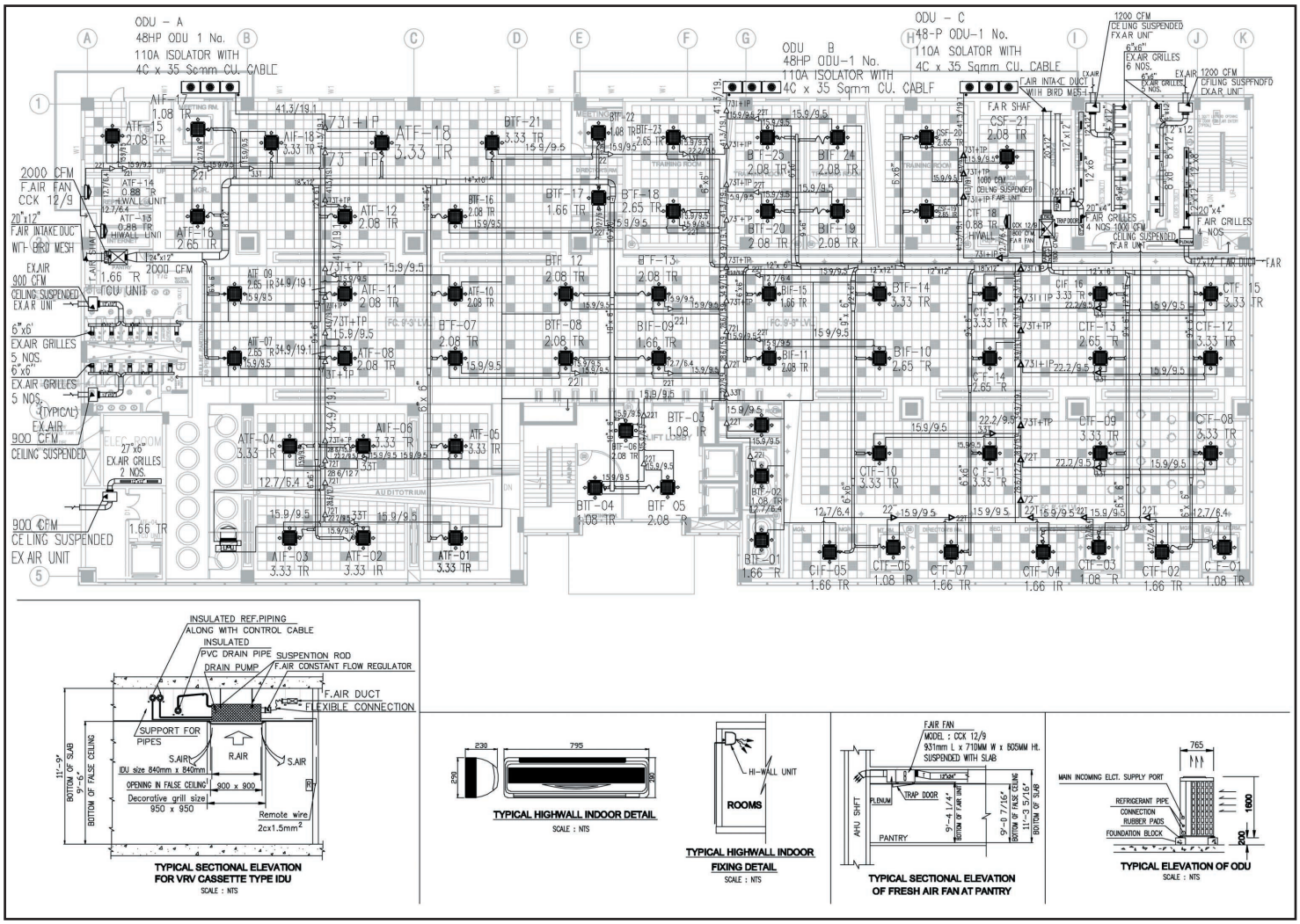


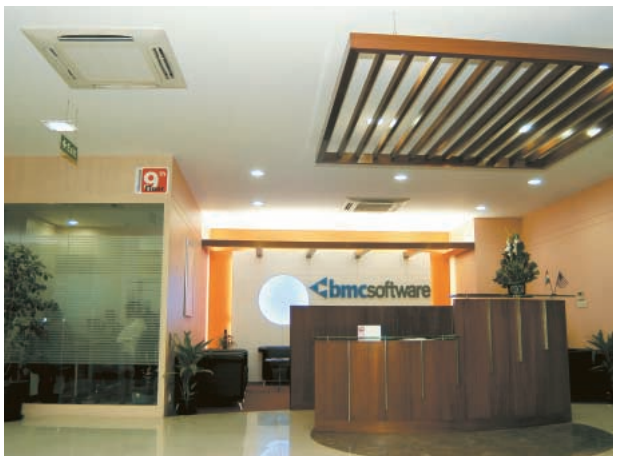
Fig-1 3rd Floor Plan

Project Commentary

The VRV System was selected for this modern building for several reasons, including its advanced air conditioning technology, high level of comfort, flexibility, and low energy consumption.Also influencing the decision in favour of the VRV system were its ease of use, ease of maintenance, and user-friendly control system.
The utilisation of available space—by accommodating the outdoor units on the balcony of each floor—helped to open up terrace space which could be used for the cafeteria.The end user was extremely satisfied with the performance and has decided to employ a Daikin VRV air conditioning system for phase two of its office construction as well.

BMC Software India Pvt. Ltd.

INDIA



Project Outline

Location	Pune, India
Number of floors	9F
Total floor area	8,200 m²
Date of completion	December, 2005

This property is the building shown on the left in the photo above. Floors 1-9 are occupied. The second floor is a parking lot, and the first floor and floors 3-9 are for offices.

Equipment

Outdoor units	48 HP × 13 32 HP × 2 24 HP × 1	**Indoor units**	FXM250LVE × 32 FXF125LVE × 15 FXF100LVE × 51 FXF80LVE × 8 FXF63LVE × 31 FXF50LVE × 35 FXF32LVE × 5 FXF25LVE × 164 VAM1000FAVE × 26
Others	intelligent Manager		

BMC Software India Pvt. Ltd.

INDIA

Design Drawing

Shown below is the typical floor plan (fig-1).
Two outdoor unit systems per floor were supplied, along with 4-way blow ceiling-mounted cassette type units and duct type units for the indoor units. Primary treated fresh air is taken into the indoor units through the ducts, and then provided to the rooms. Header pipes were employed for some of the refrigerant piping.

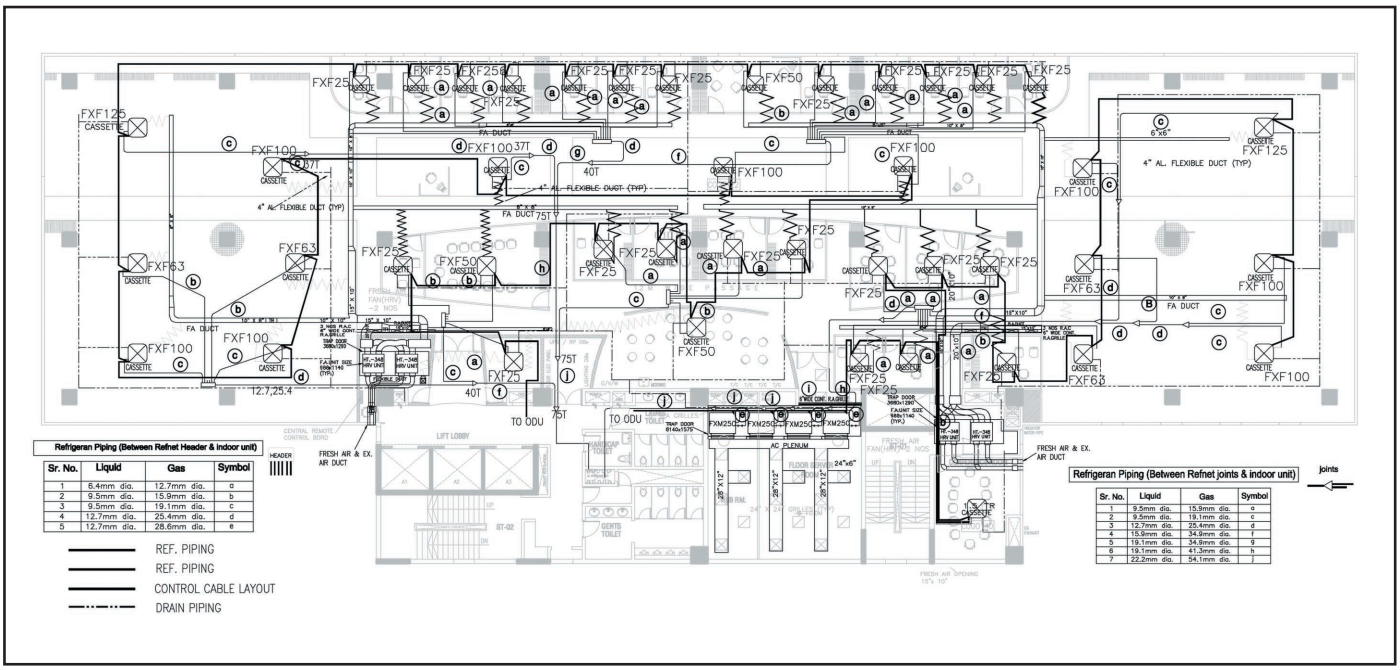


Fig-1 Typical Floor Plan

Project Commentary

One of the reasons for selecting the VRV System was its advantageous feature of being able to function with exceptionally long piping lengths between the indoor units and outdoor units, which matched the requirements of this installation.
The customer was also impressed with the energy-saving characteristics of the system.

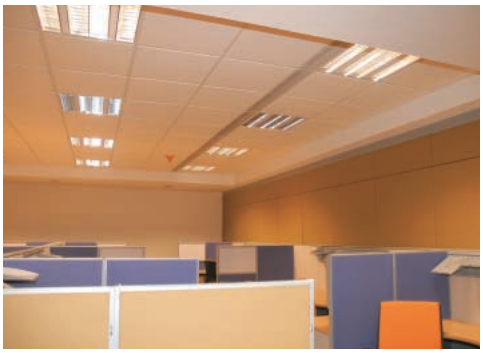
The HRV system has been a bonus to the project by providing fresh air, enhancing the energy savings and comfort realised by the total installation.

Covansys India Pvt. Limited

INDIA

Project Outline

Location	Bangalore, India
Number of floors	5F
Total floor area	18,500 m²
Date of completion	April, 2006



Equipment

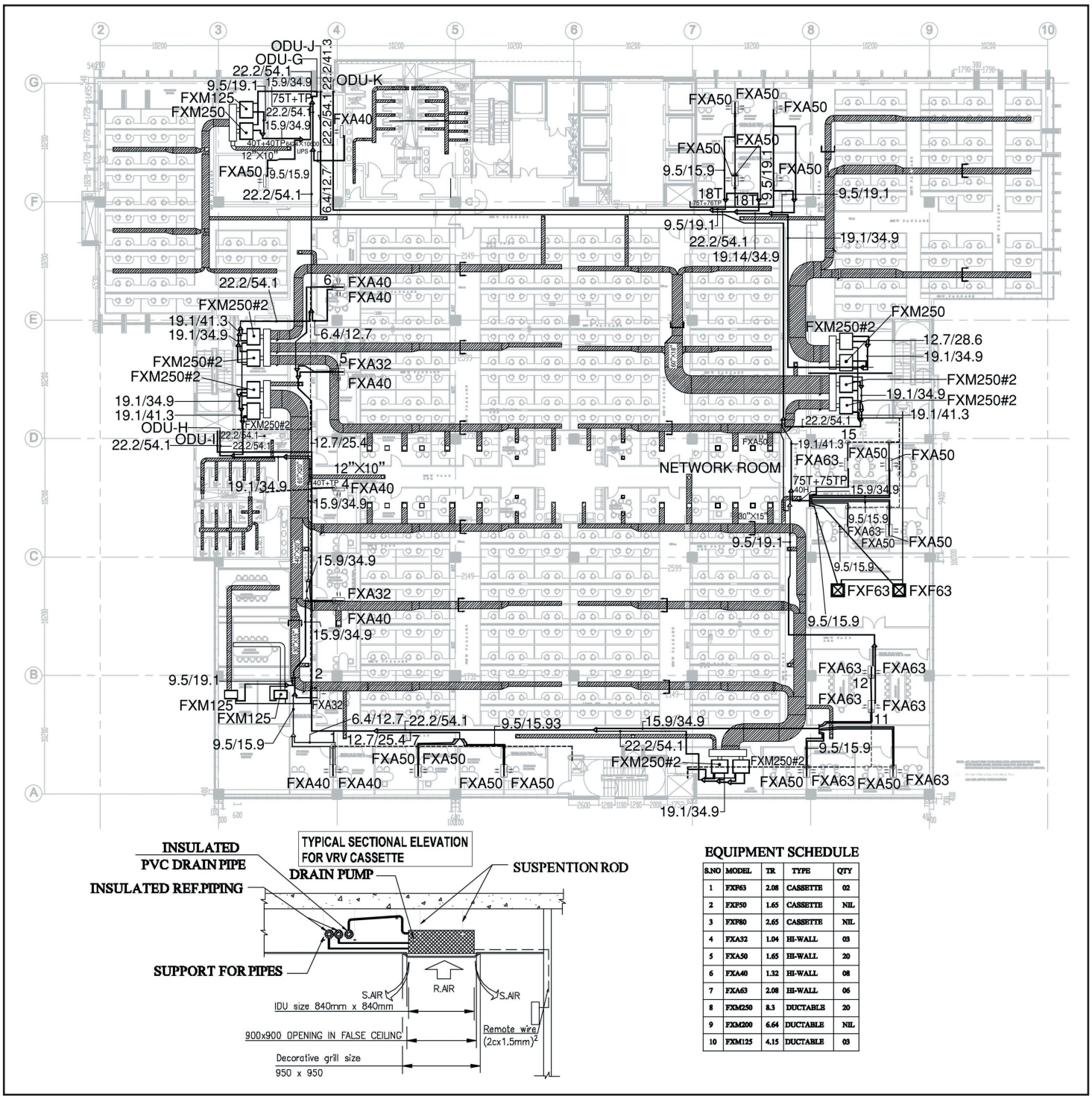
Outdoor units	RXY48MY1 × 16 RXY32MY1 × 5 RXY16MY1 × 1	**Indoor units**	FXF125LVE × 5 FXF80LVE × 1 FXF63LVE × 9 FXF50LVE × 2 FXM250LVE × 66 FXM200LVE × 11 FXM125LVE × 6 FXA25LVE × 7 FXA32LVE × 75 FXA40LVE × 24 FXA50LVE × 44 FXA63LVE × 19
Others	intelligent Manager		

Covansys India Pvt. Limited

INDIA

Design Drawing

Shown below is the floor plan for the 2nd floor (fig-1), piping schematic diagram (H Schema) (fig-2), and piping schematic diagram (J Schema) (fig-3).
Duct type indoor units were used for office spaces and either cassette type or wall-mounted indoor units for small rooms (meeting rooms, etc.) Header pipes were used for some of the refrigerant piping.



EQUIPMENT SCHEDULE

S.NO	MODEL	TR	TYPE	QTY
1	FXF63	2.08	CASSETTE	02
2	FXF50	1.65	CASSETTE	NIL
3	FXF80	2.65	CASSETTE	NIL
4	FXA32	1.04	HI-WALL	03
5	FXA50	1.65	HI-WALL	20
6	FXA40	1.32	HI-WALL	08
7	FXA63	2.08	HI-WALL	06
8	FXM250	8.3	DUCTABLE	20
9	FXM200	6.64	DUCTABLE	NIL
10	FXM125	4.15	DUCTABLE	03

Fig-1 2nd Floor Plan

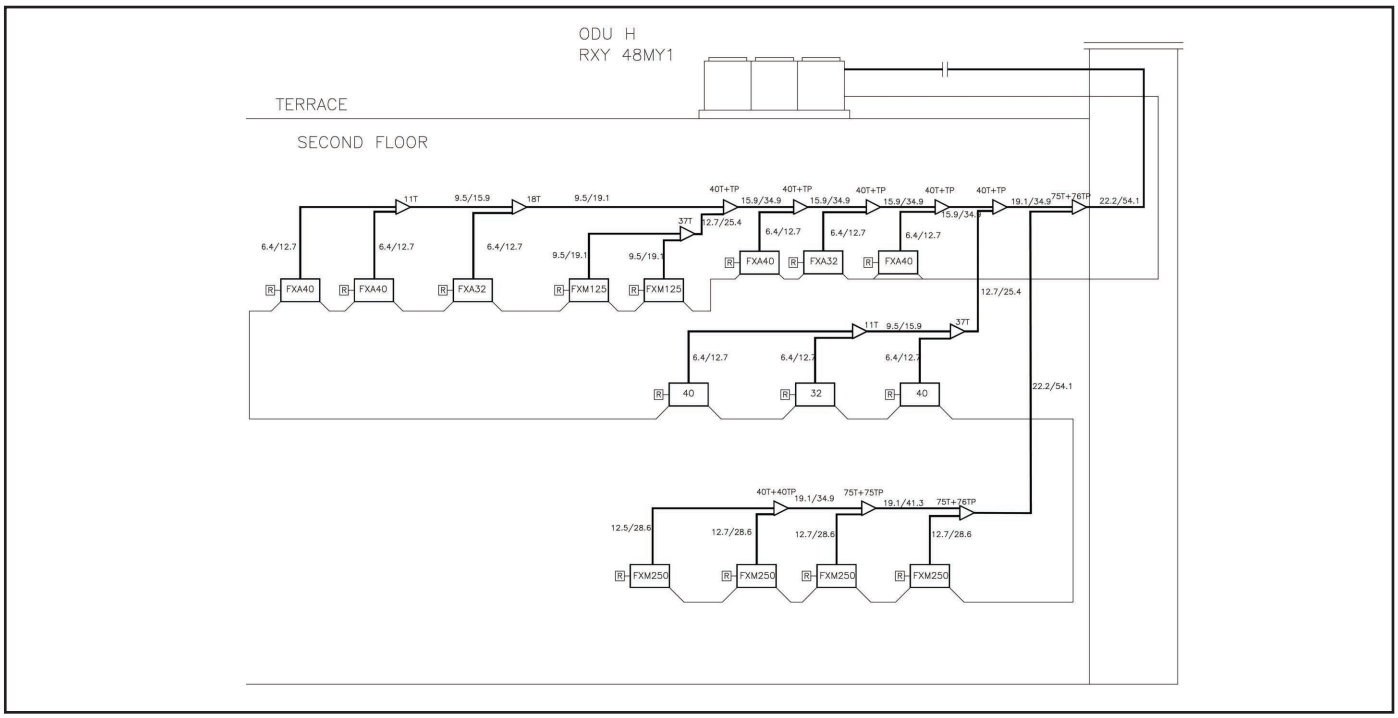


Fig-2 Piping Schematic Diagram (H Schema)

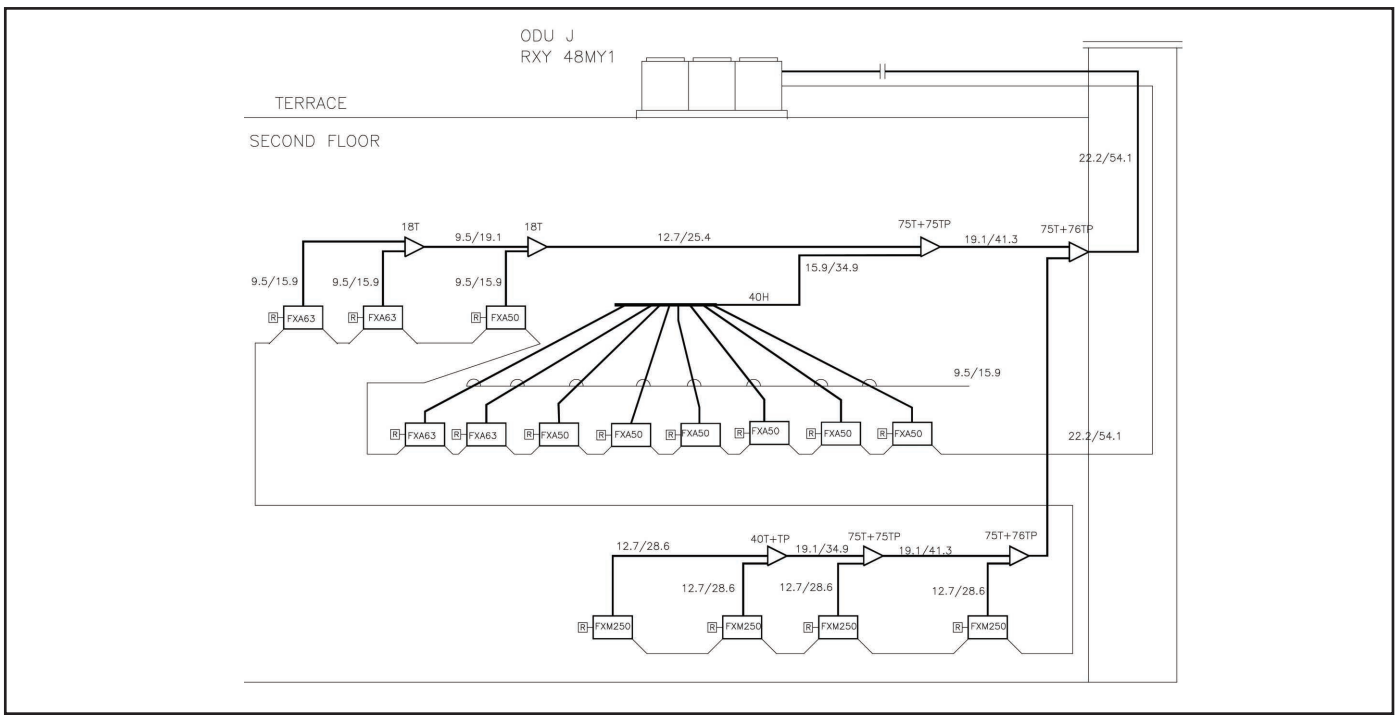


Fig-3 Piping Schematic Diagram (J Schema)

Project Commentary

The VRV System was selected for the following reasons and benefits: a wide variety of indoor units were available for different applications, such as cabins, conference rooms, and workstation areas; the system's compact outdoor units left the terrace with an ample of amount space; and finally, compared to conventional central air conditioning, the simple, individual zoned control of the VRV System significantly decreased energy usage and thus running costs.

The entire system was installed quickly in each phase at convenient locations during construction of the building, so that the building could be put to beneficial use in phases; the system also flexibly fulfills the requirements of each area. Other reasons for selecting this system included less floor area required for outdoor units, which saved space, and ease of operation due to its advanced control system. Also, no vibration and a low sound level for the outdoor units were major requirements of the customer.

Persistent Systems Pvt. Ltd.

INDIA

Project Outline

Location	Pune, India
Number of floors	12F
Total floor area	17,000 m²
Date of completion	June, 2006

Equipment

Outdoor units	48 HP × 22 34 HP × 1 28 HP × 1 22 HP × 1 16 HP × 2 8 HP × 1 5 HP × 11	**Indoor units**	FXF25LVE × 64 FXF32LVE × 51 FXF40LVE × 67 FXF50LVE × 15 FXF63LVE × 138 FXF80LVE × 156	FXF100LVE × 16 FXF125LVE × 3 FXM125LVE × 40 FXM200LVE × 4 FXM250LVE × 2
Others	intelligent Manager			

Persistent Systems Pvt. Ltd.

INDIA

Design Drawing

Shown below is the typical floor plan (fig-1).
Two outdoor unit systems per floor were supplied, with two 48 HP outdoor units placed on the balcony of each floor. All indoor units were cassette type units.

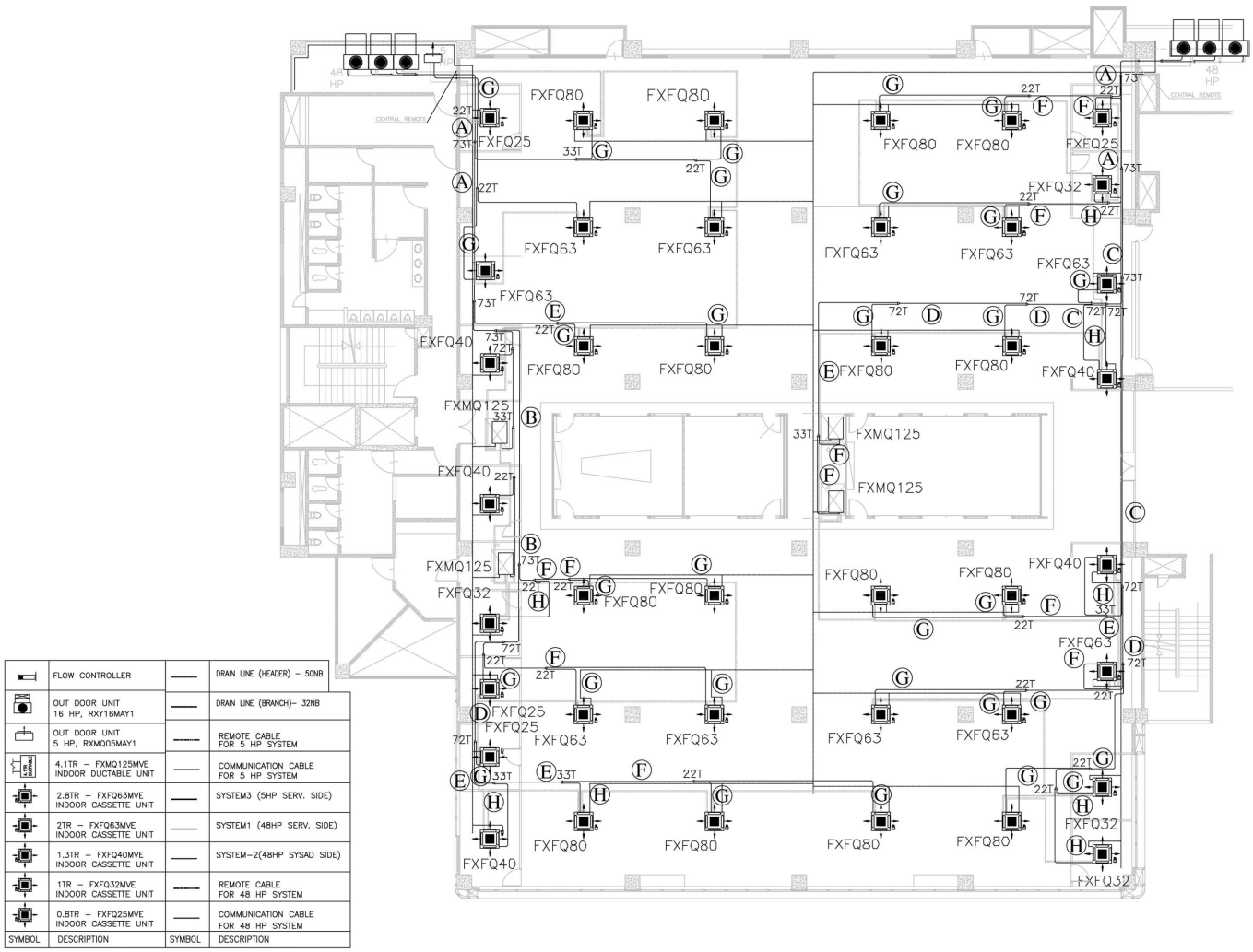


Fig-1 Typical Floor Plan

Project Commentary

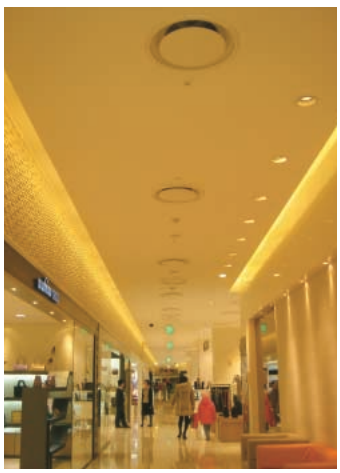
The high reliability of the VRV system led to its selection for its ability to provide more efficient air conditioning to working spaces.Also, the utilization of available space by accommodating the outdoor units on the balcony of each floor led to a savings of terrace space and facilitated installation. Finally, the VRV system's ease of use and maintenance were appreciated in the selection process.

Hyundai Department

KOREA

Project Outline

Location	Yongsan Seoul, Korea
Number of floors	6F
Total floor area	46,000 m²
Date of completion	July, 2006



Equipment

Outdoor units	RXY10MYL × 13 RXY12MYL × 9 RXY14MYL × 8 RXY16MYL × 44	**Indoor units**	FXM100LVE × 3 FXM125LVE × 5 FXM200LVE × 13 FXM250LVE × 54 FXM63LVE × 4 FXM80LVE × 9
Others	intelligent Manager		

Hyundai Department

KOREA

Design Drawing

Shown below are the 4th floor duct plan (fig-1), 4th floor piping schematic diagram (fig-2), and piping schematic diagram (fig-3).
Outdoor units were placed on the roof and 8th floor. All indoor units were duct type units.

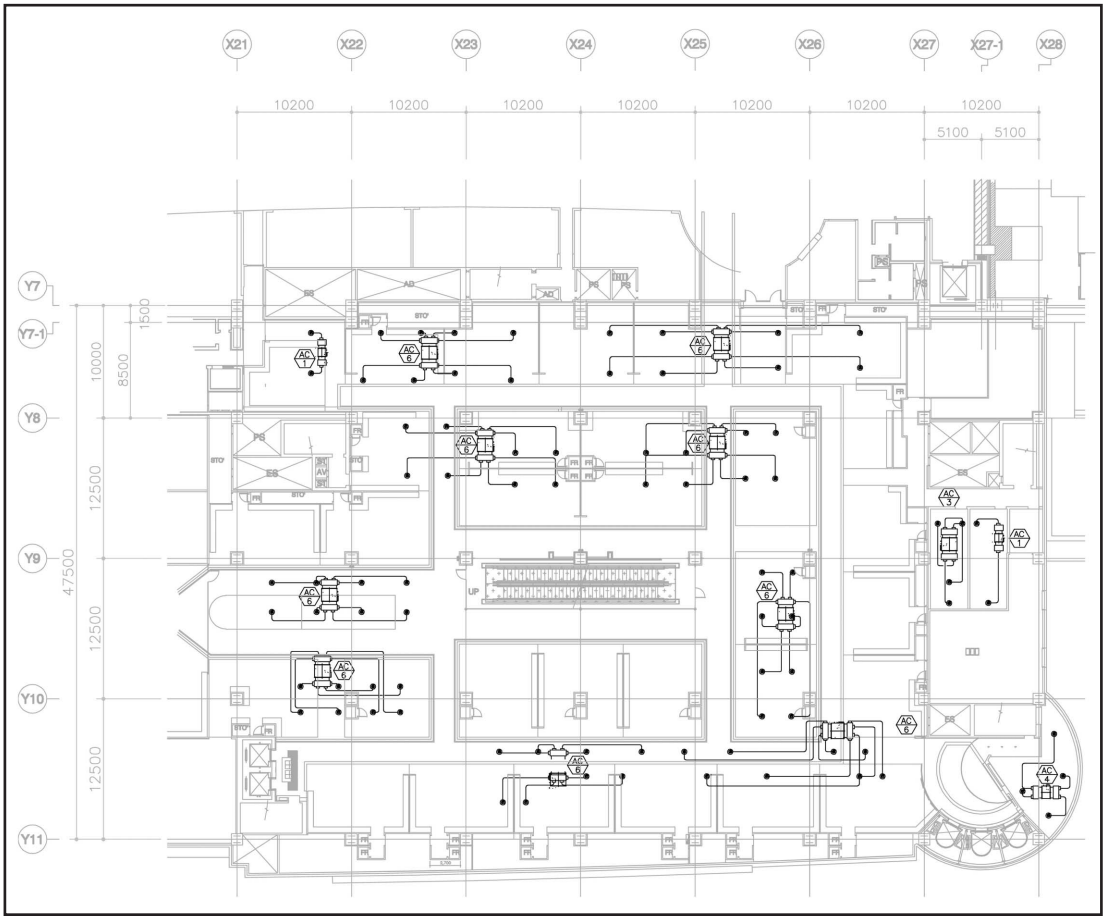


Fig-1
4th Floor
Duct Plan

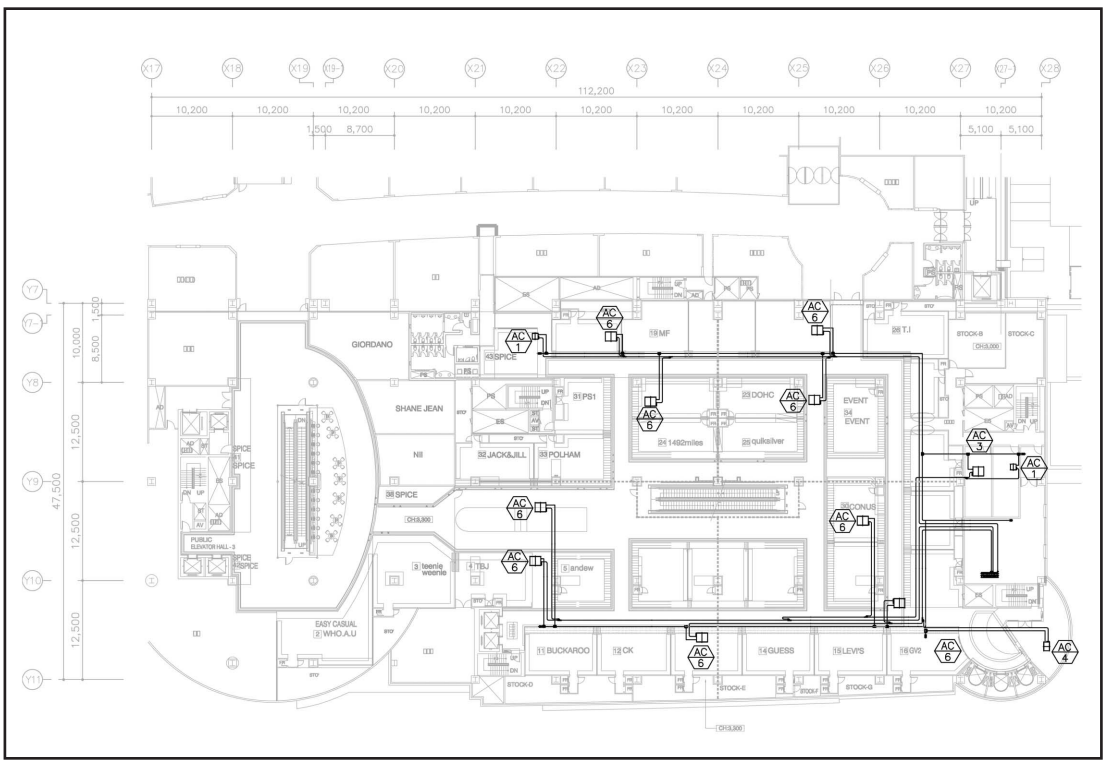


Fig-2
4th Floor Piping
Schematic Diagram

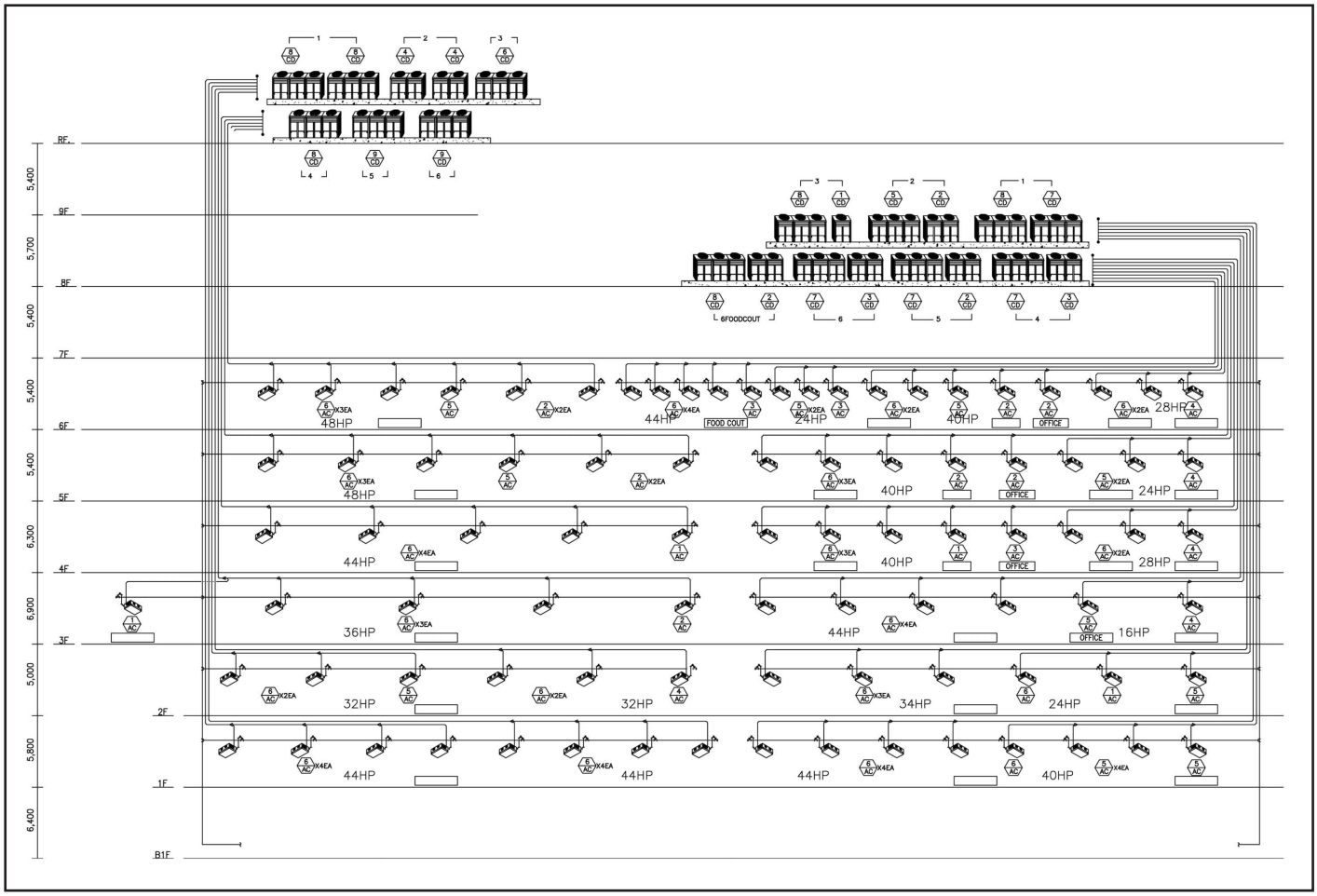


Fig-3 Piping Schematic Diagram

Project Commentary

The VRV system was adopted by the end user, a modern department store, for its flexible design and construction, adaptability to the interior space, and its low construction cost.

Because of the limited installation space for the outdoor units, Daikin's building multi system was chosen for the long piping it could handle, which Korean manufacturers' systems could not.

This department store is in a major train station building in Seoul where the KTX (Korea Train Express) stops. The station attracts a huge number of passers-by and provides comfortable air conditioning.

National Taiwan University of Science and Technology

TAIWAN

Project Outline

Location	Taipei City, Taiwan
Number of floors	12F
Total floor area	8,234.59 m²
Date of completion	July, 2004

Equipment

Outdoor units	RXY8M × 2	**Indoor units**	FXYD32 × 1
	RXYQ10M × 8		FXYD40 × 20
	RXYQ14M × 1		FXS80 × 36
	RXY14M × 1		FXS100 × 15
	RNY10K × 9		FXSQ63 × 4
	RXY10K × 6		FXSQ80 × 17
Others	BRC1A62 × 79		

National Taiwan University of Science and Technology

TAIWAN

Design Drawing

Shown below are the air conditioning floor plans for the 11th and 12th floors (fig-1, 2) and piping schematic diagram (fig-3).
On the 11th and 12th floors, rooms are mainly faculty offices for professors, so duct type indoor units were installed. For ventilation, air handling units are being used. The outdoor units were all placed on the roof.

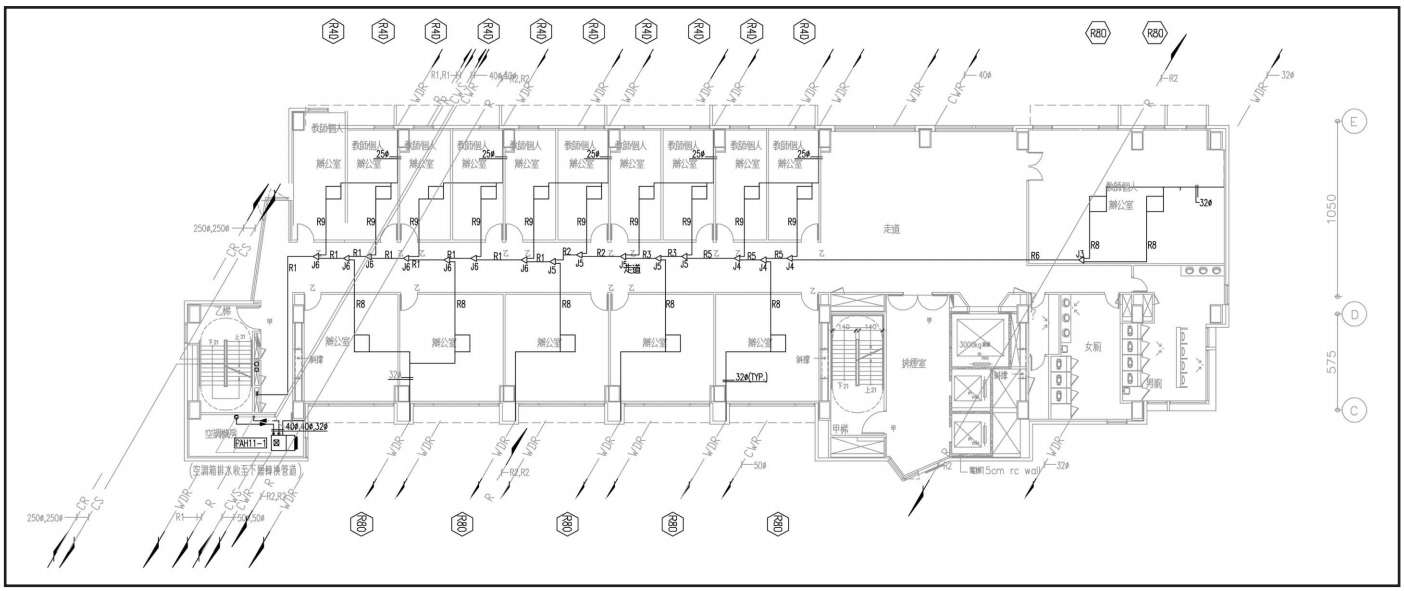


Fig-1 11th Floor Plan

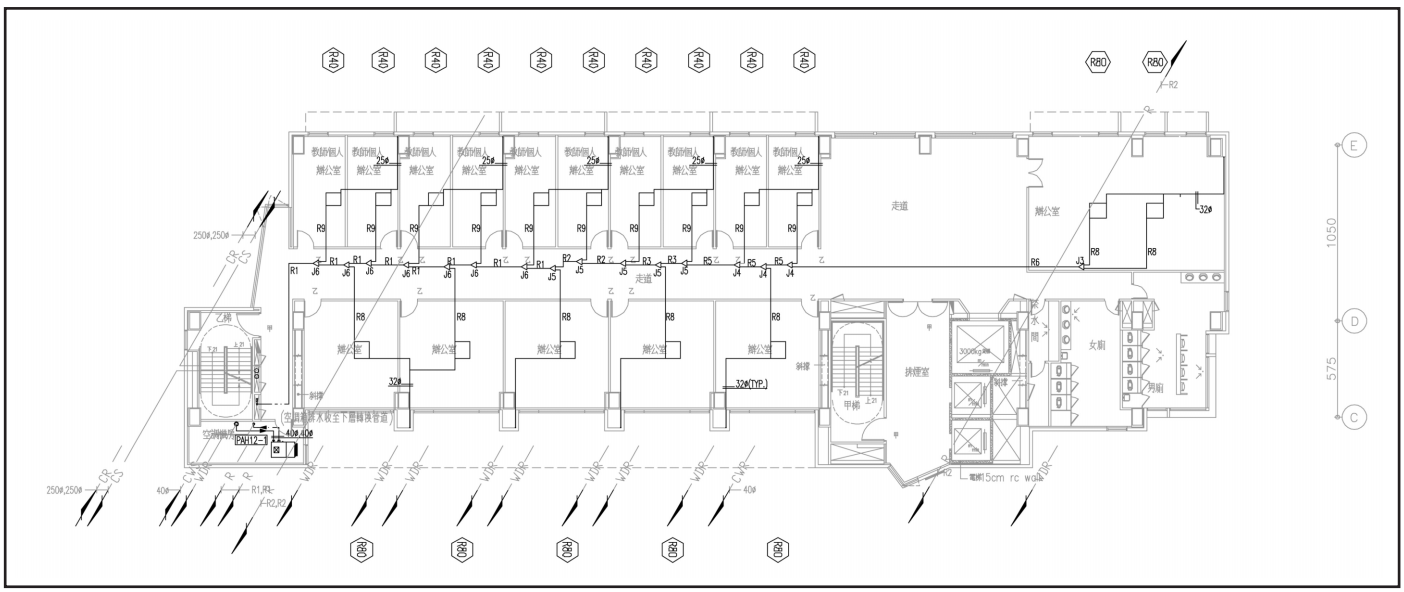


Fig-2 12th Floor Plan

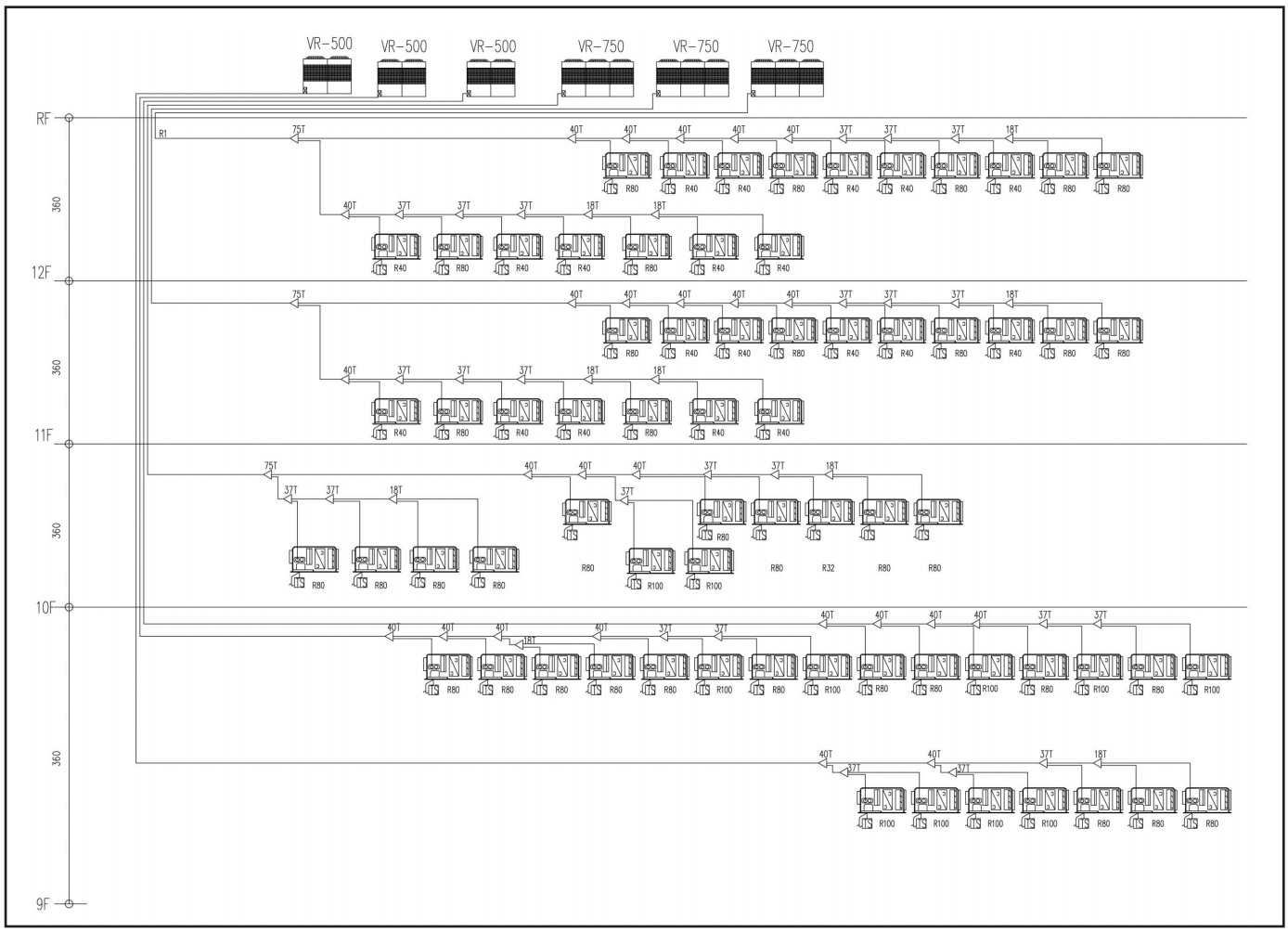


Fig-3 Piping Systematic Diagram

Project Commentary

This project is an international hall of a national university in downtown Taipei. As a new government project, it was divided into a first stage and a second stage. In the design for the first stage, Daikin was not involved. The specifications for a VRV system from another maker were adopted. But ***because of its use as a school, different rooms would have different uses, and requests arose for energy savings, individual control, and easy maintenance. The use of Daikin's superior VRV system was proposed to the subcontractor, and the proposal was apparently accepted.***

The benefits of Daikin's VRV system were recognised and it was again used for the second stage of the project.

The Art Plaza

TAIWAN

Project Outline

Location	Taoyuan City, Taiwan
Number of floors	14F
Total floor area	6,600 m²
Date of completion	October, 2006

Equipment

Outdoor units	RXY10M × 24 RXY12M × 160 RXY14M × 33	**Indoor units**	FXS80 × 197 FXYD63 × 501 FXYD50 × 146 FXYD40 × 133 FXYD32 × 354 FXYD25 × 165 FXYD20 × 325
Others	BRC4C62 × approx. 2000		

The Art Plaza

TAIWAN

Design Drawing

Shown below are the typical floor plans for Buildings A (fig-1), B (fig-2), and C (fig-3).
The outdoor units in each building, with 10-14 HP capacities, were placed on the verandas. The interior design was important, so all indoor units were ceiling-embedded hidden duct units.

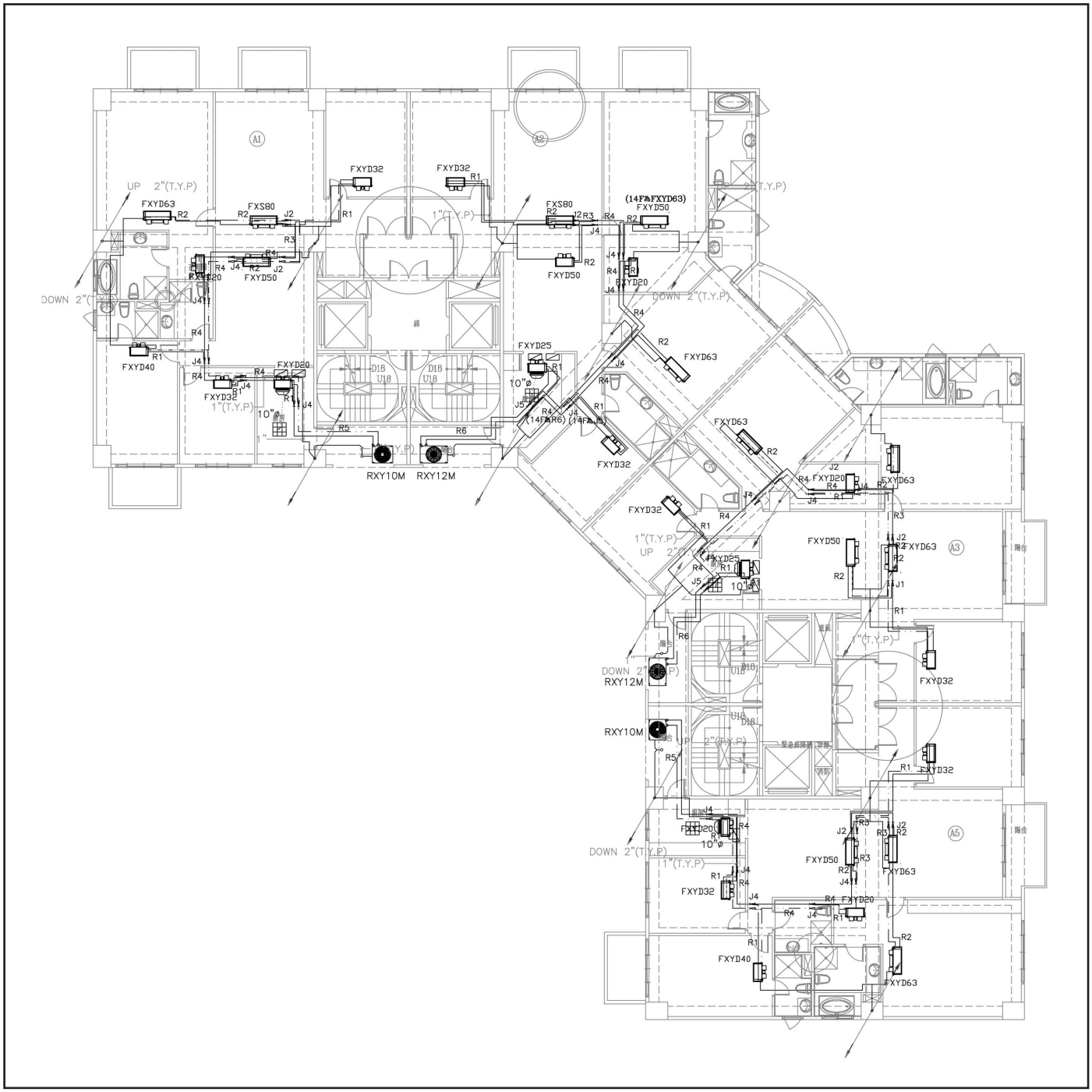


Fig-1 Bldg. A Typical Floor Plan

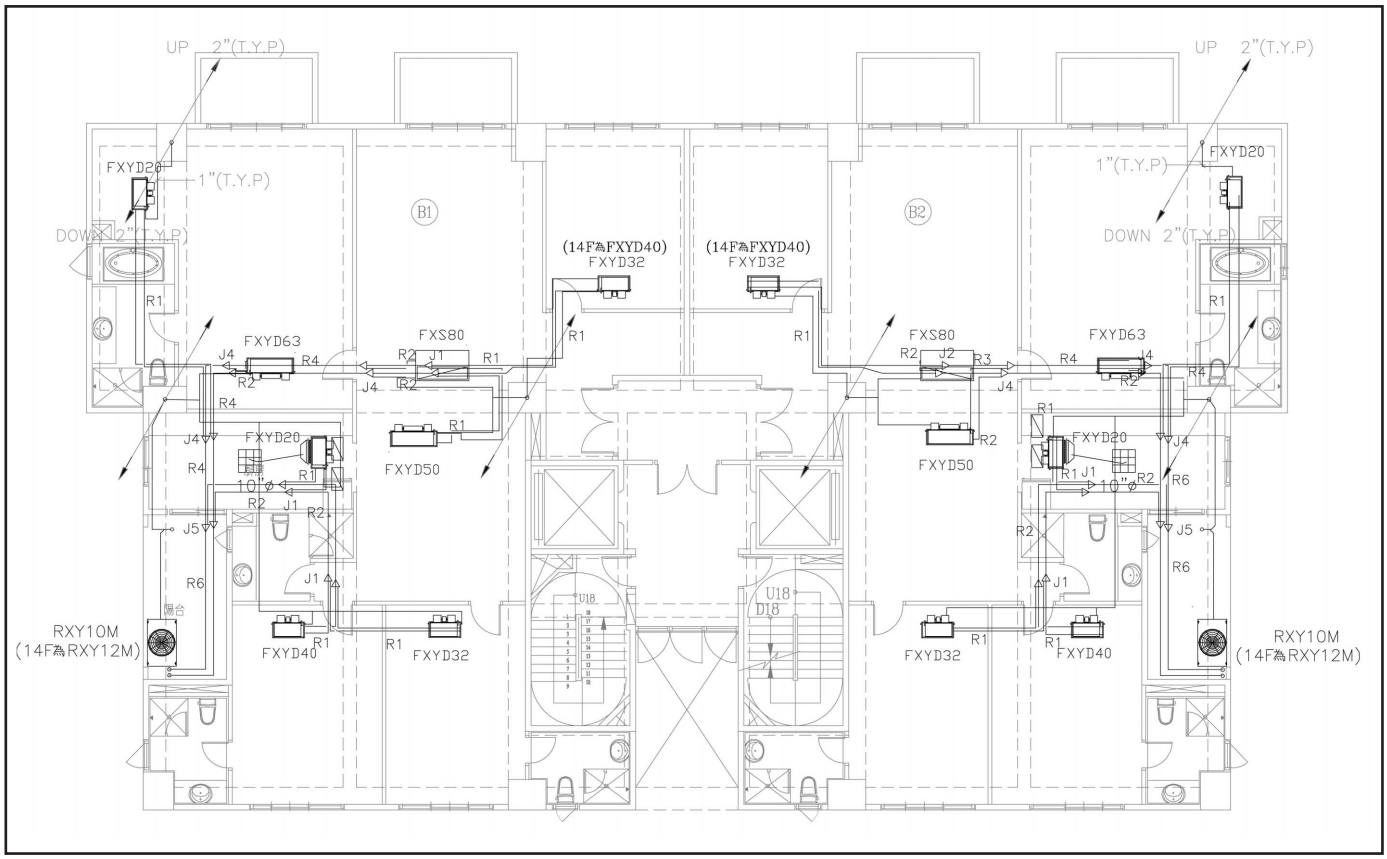


Fig-2 Bldg. B Typical Floor Plan

The Art Plaza

TAIWAN

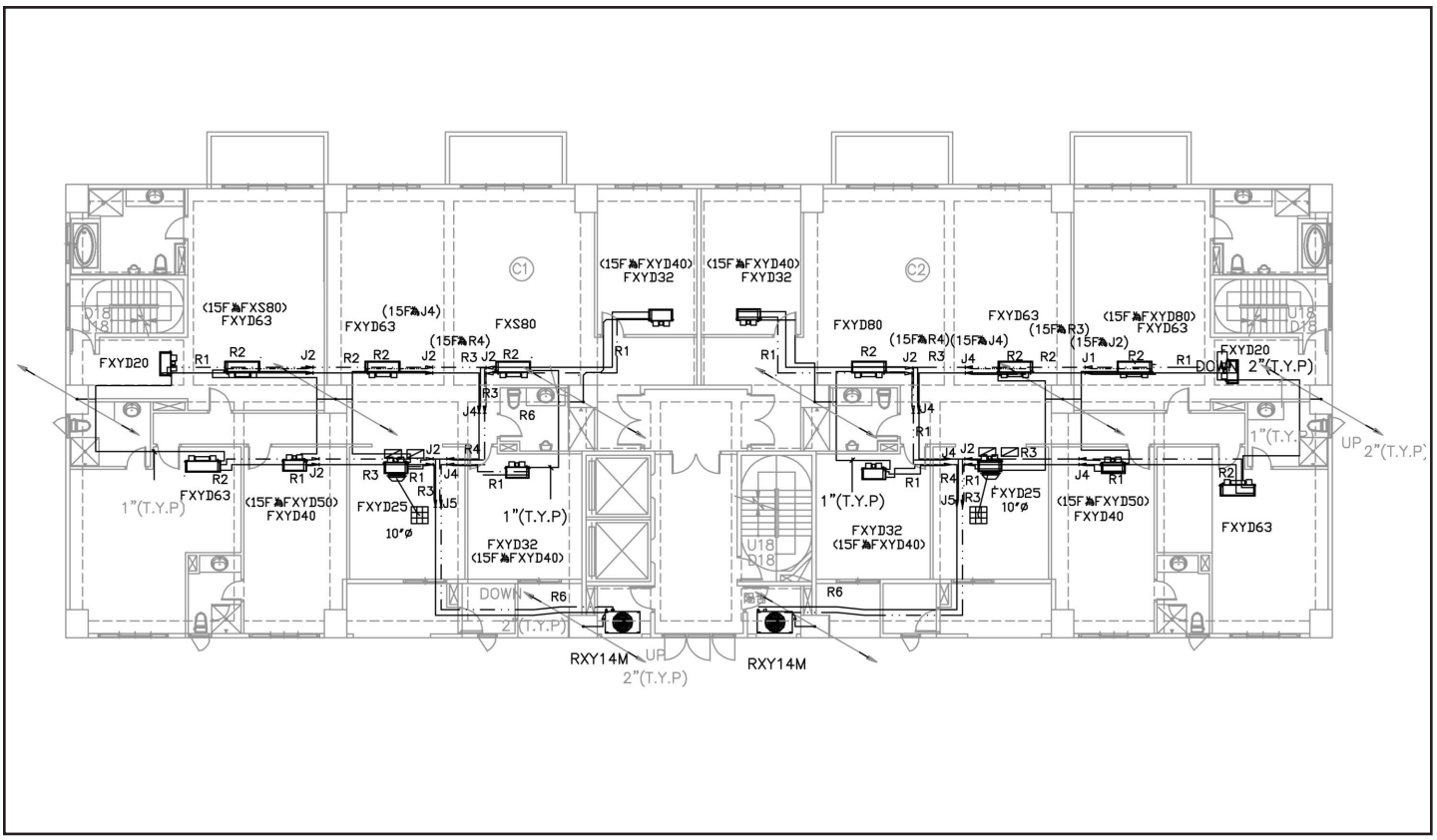


Fig-3 Bldg. C Typical Floor Plan

Project Commentary

The total floor area of The Art Plaza is 6600 m². It is a 14-storey building with 250 apartments, each a very spacious 250-500 m², making it the highest class of condominium in the Taoyuan area. During the design phase, when the subcontractor proposed the air conditioning system to the owners, these points were emphasised: energy savings, individual control, no obstruction to the appearance of the building, and a high-class brand suitable for a high-class condominium.

The appearance of the building was especially important for this project, so the location of the outdoor units was limited and consolidated. The industry's most compact system, Daikin's VRVII, was used to meet the customer's demands. Strict demands were also placed on interior appearance.

For the ceilings, side-blowing duct type indoor units were used that did not interfere with the ceiling design, thereby preserving a beautiful interior. To provide a complete low noise solution, air chambers, sound-deadening boxes, and soft ducts were employed.

Room air conditioning offers floor-by-floor and apartment-by-apartment control for superb energy savings that helps to greatly reduce utility costs. Customers were very appreciative of this design. Also, the Daikin VRV system includes a wide range of different indoor and outdoor units to match varying room sizes and interior designs.

Yunlai Monastery, Dharma Drum Mountain

TAIWAN

Project Outline

Location	Taipei City, Taiwan
Number of floors	7F
Total floor area	8,854.8 m²
Date of completion	November, 2006

Dharma Drum Mountain is a leading Buddhist group in Taiwan, with several branch temples. This project is in downtown Taipei. The building has seven floors. On the first floor is the reception area; the second floor has a Buddhist temple; floors 3-6 hold offices; and the 7th floor is a dormitory.

All of the income for the Buddhist group comes from donations, so energy savings was a key focus for the air conditioning system. Also, because this is a religious building, the rooms would be multi-purpose use, so individual control was another desired feature.

Equipment

Outdoor units	RXY5M × 1	RXY22M × 8
	RXY10M × 1	RXY24M × 1
	RXY14M × 1	RXY32M × 1
	RXY20M × 1	RXY48M × 3
Others	BRC1C61 × 138	
	DCS301BA61 × 17	

Yunlai Monastery, Dharma Drum Mountain

TAIWAN

Design Drawing

Shown below are the 2nd and 6th floor piping plans (fig-1, 2) and the piping schematic diagrams (fig-3, 4). The outdoor units were placed on the roof and connected to indoor units on each floor. Duct type and some cassette type indoor units were used. A total heat exchanger provides ventilation.

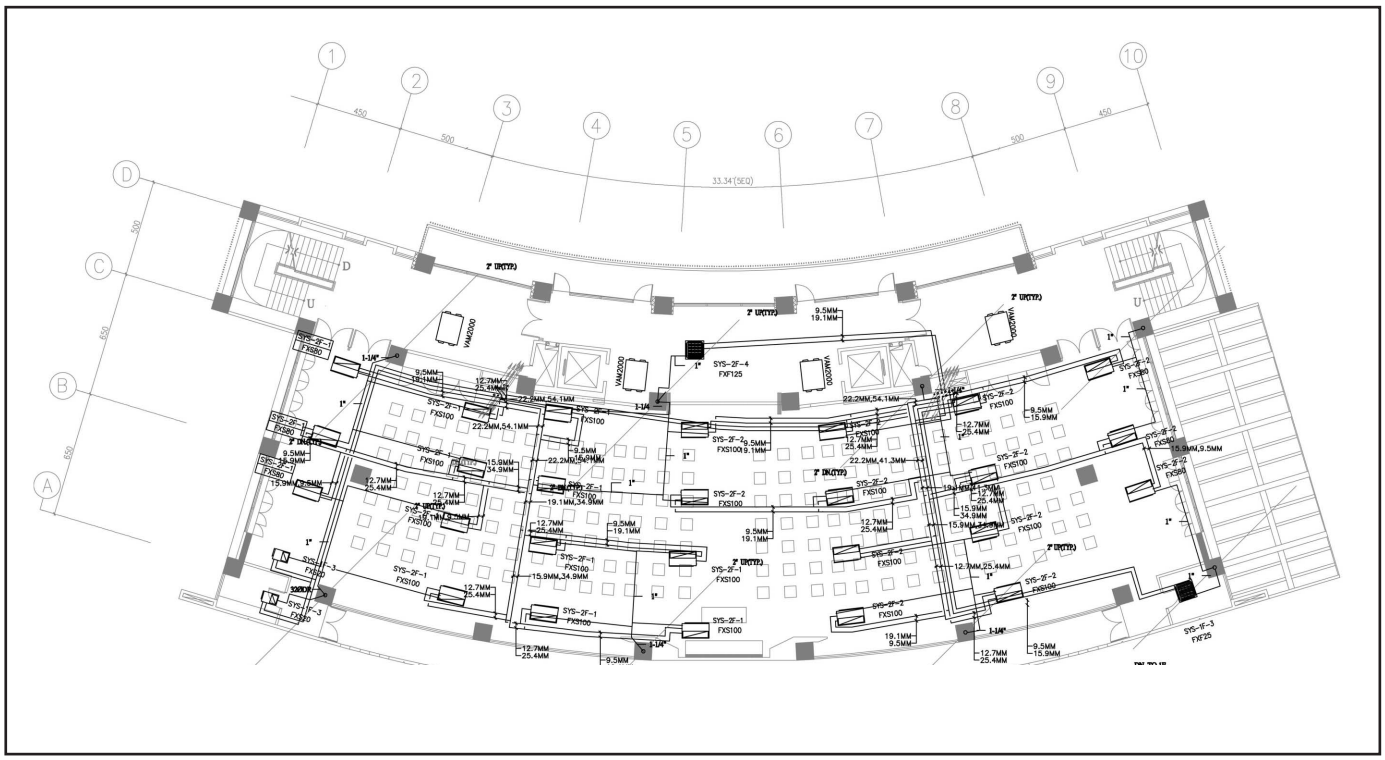


Fig-1 2nd Floor Piping Plan

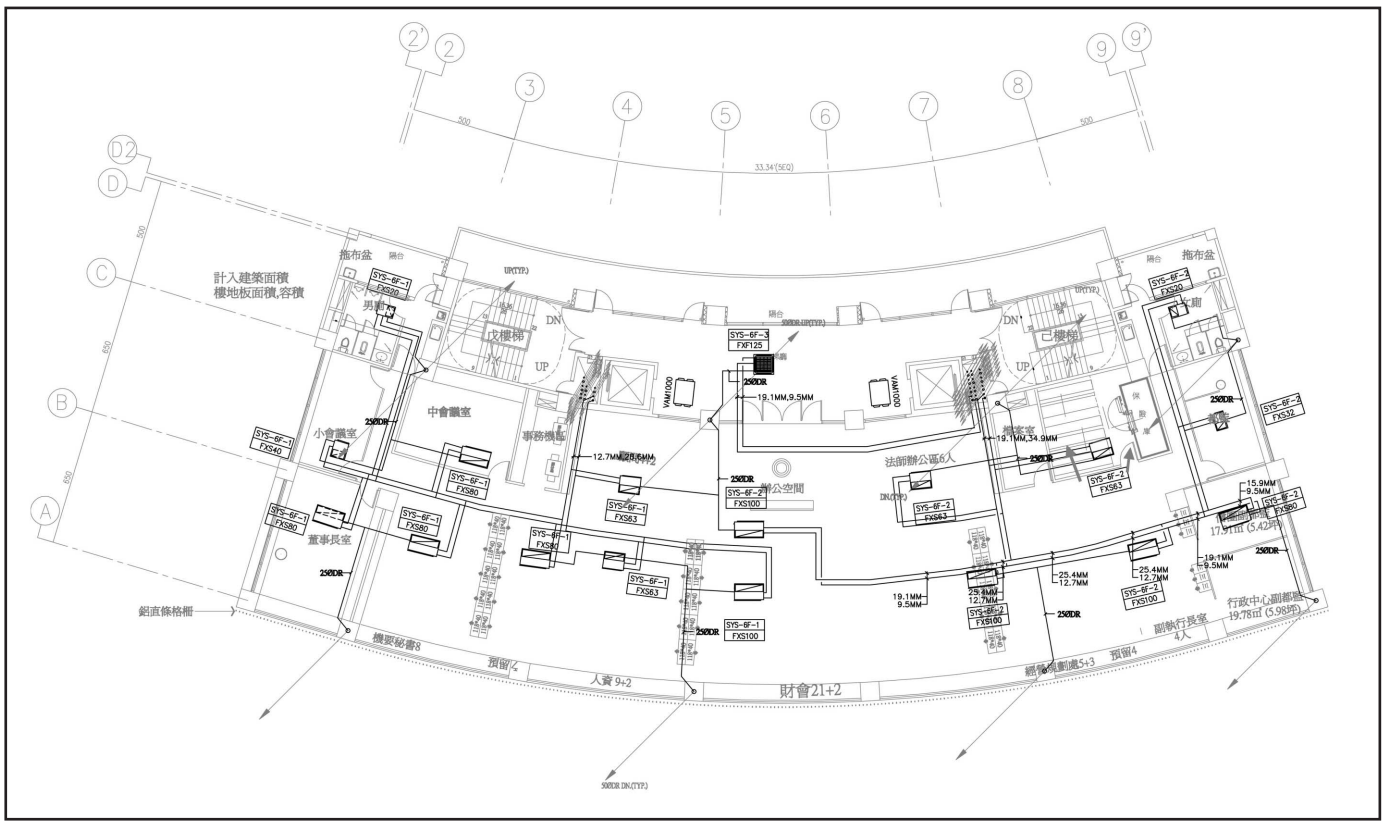


Fig-2 6th Floor Piping Plan

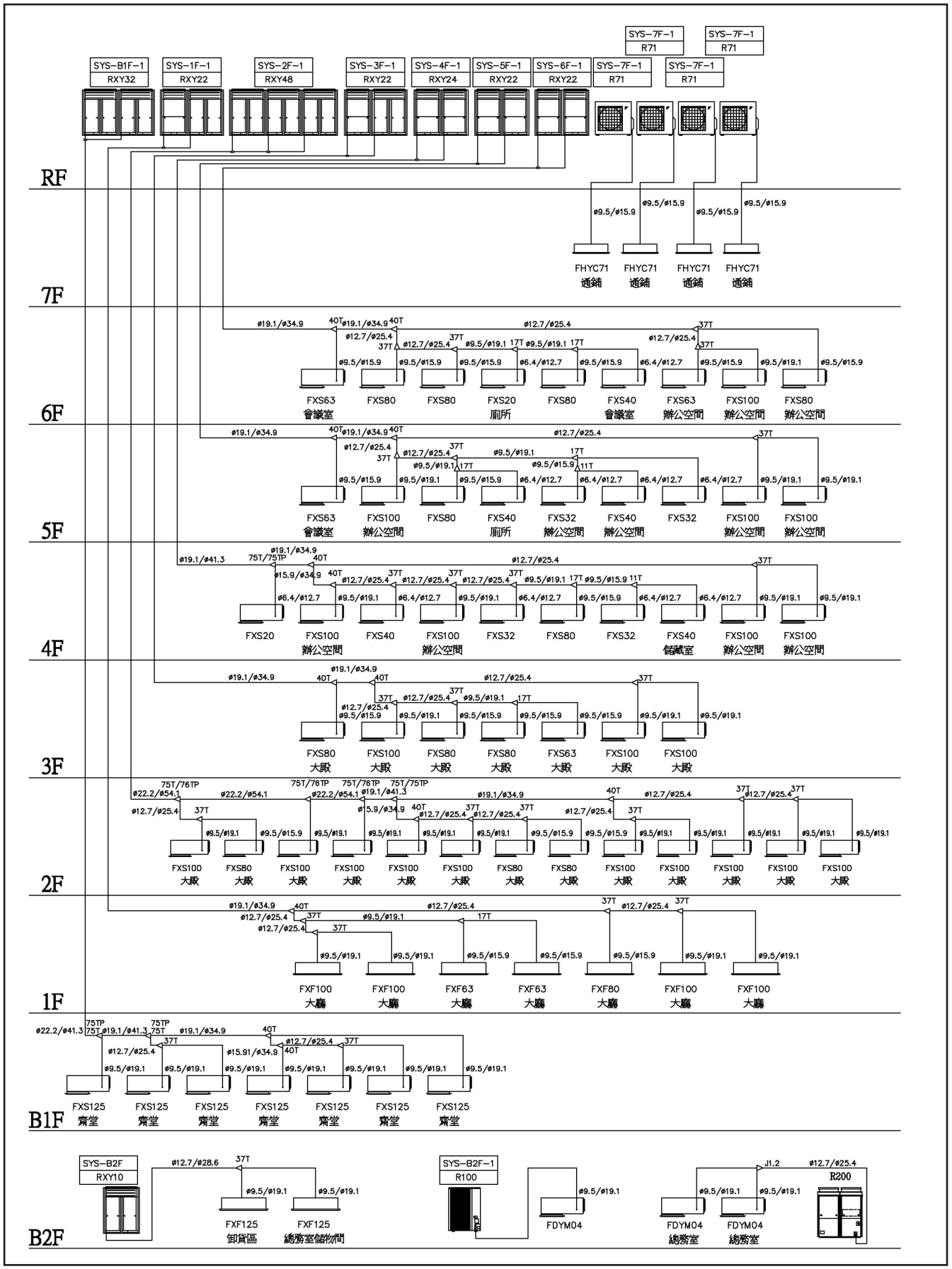


Fig-3 Piping Schematic Diagram

Yunlai Monastery, Dharma Drum Mountain

TAIWAN

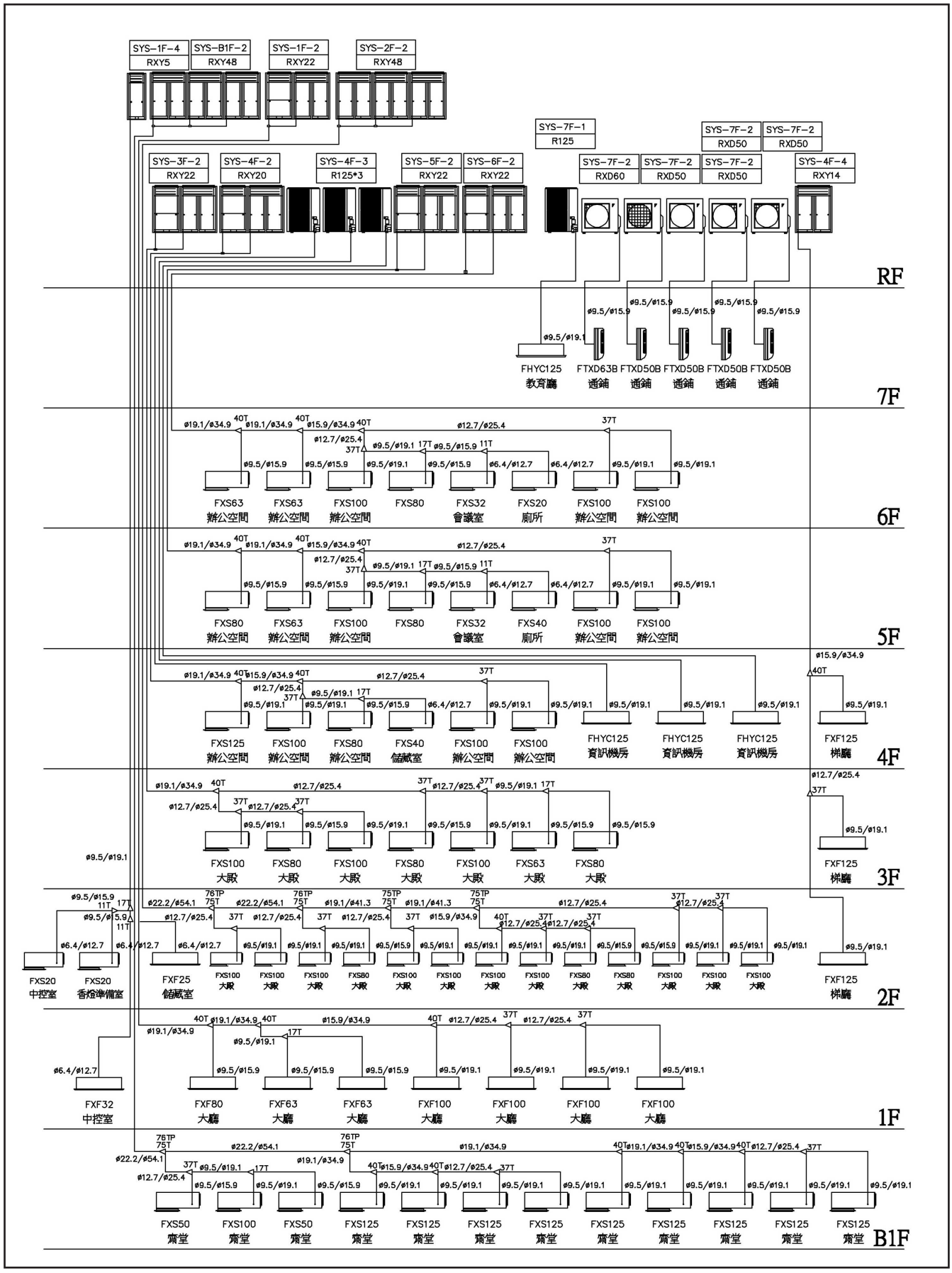


Fig-4 Piping Schematic Diagram

Project Commentary

The general contractor for this project was a major Taiwanese company that required high quality workmanship and was very strict about safety measures during the construction work. Highly professional on-site management led to completion of the project in November 2006.
For the first floor reception area, the ceiling was 5 metres high with a lattice design, so the Daikin ceiling-embedded cassette type indoor unit was used to provide interior compatibility.
The Buddhist temple on the second floor was a room for Buddhist monks and followers to engage in various religious activities. The room was an open type room with an area of 10,500 m^2. On weekdays the room was fairly empty of occupants, but on weekends it was crowded. For this reason, ***the air conditioning equipment had to be able to handle load change well, and also operate quietly. To meet these needs of the customer, a VRV system with inverter control was selected, together with duct-type indoor units and all types of sound-dampening features.***
Also, because of the long piping length offered by Daikin's VRV system, all outdoor units were placed on the rooftop.
Because the outdoor units are lightweight and compact, their transportation to the site and installation did not require a crane, and could be brought in by elevator. This helped to shorten the time required for construction and reduced construction costs.

"Protection of the spiritual environment" and "caring for the natural environment" are important principles in the teachings of Dharma Drum Mountain. Because the energy-saving and individual control features of the VRV system matched these principles well, the monks and architects both approved its use. As a result, the Daikin system was selected for plans involving newly built branch temples and air conditioning renovations at existing temples.

Taniya Plaza Building

THAILAND

Project Outline

Location	Bangkok, Thailand
Number of floors	12F
Total floor area	11,000 m²
Date of completion	March, 2006

Equipment

Outdoor units	RX10MY1 × 17 RX12MY1 × 4 RX14MY1 × 10 RX16MY1 × 46	**Indoor units**	FXM × 124 FXH × 31 FXF × 10 FXYB × 9
Others	intelligent Manager		

Taniya Plaza Building

THAILAND

Design Drawing

Shown below are the floor plans for the 7th floor (fig-1) and the rooftop (fig-2).
The 7th floor outdoor units cover floors 1-4, while the rooftop units cover floors 5-11. All indoor units are duct type units.

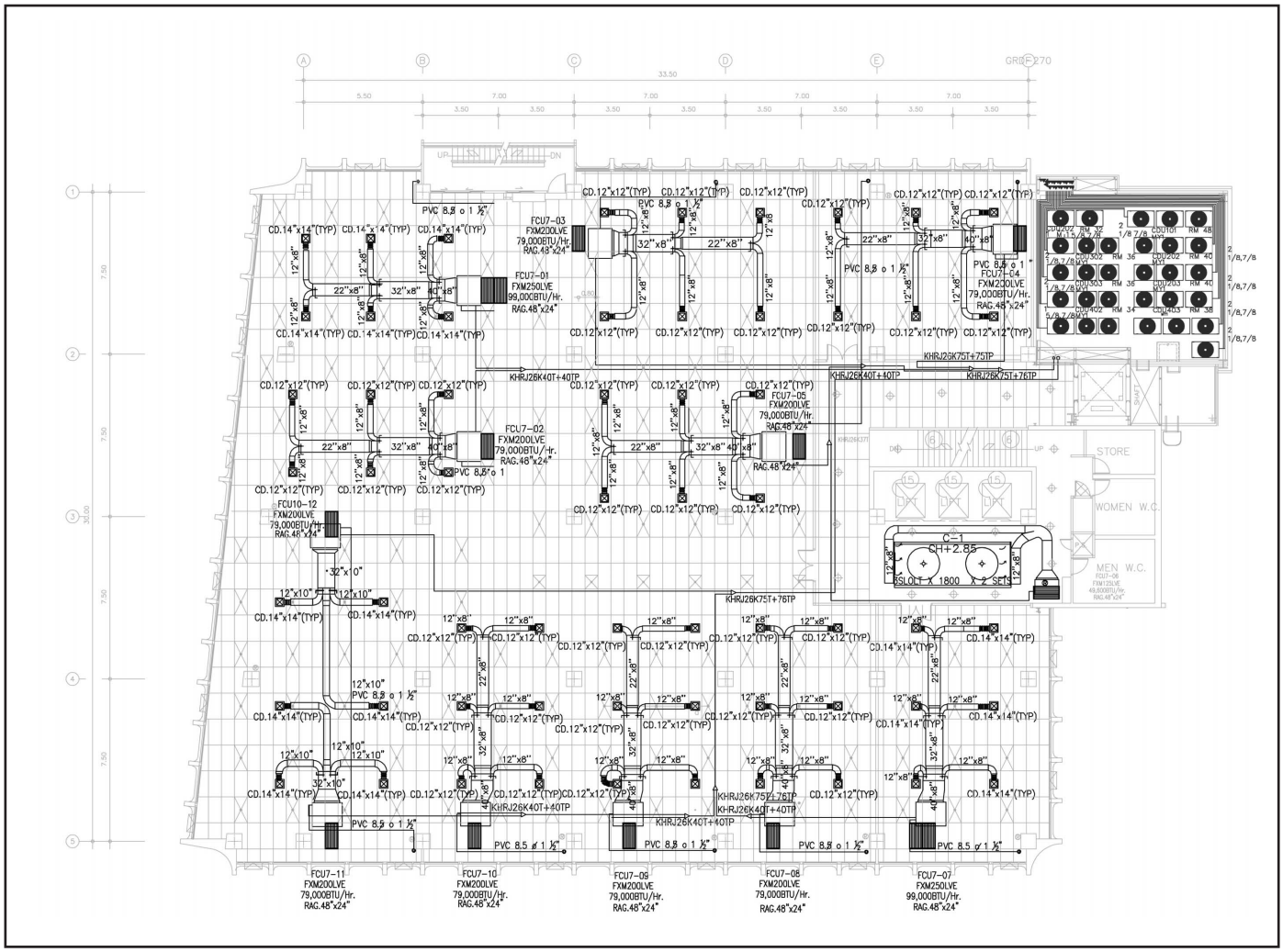


Fig-1 7th Floor Plan

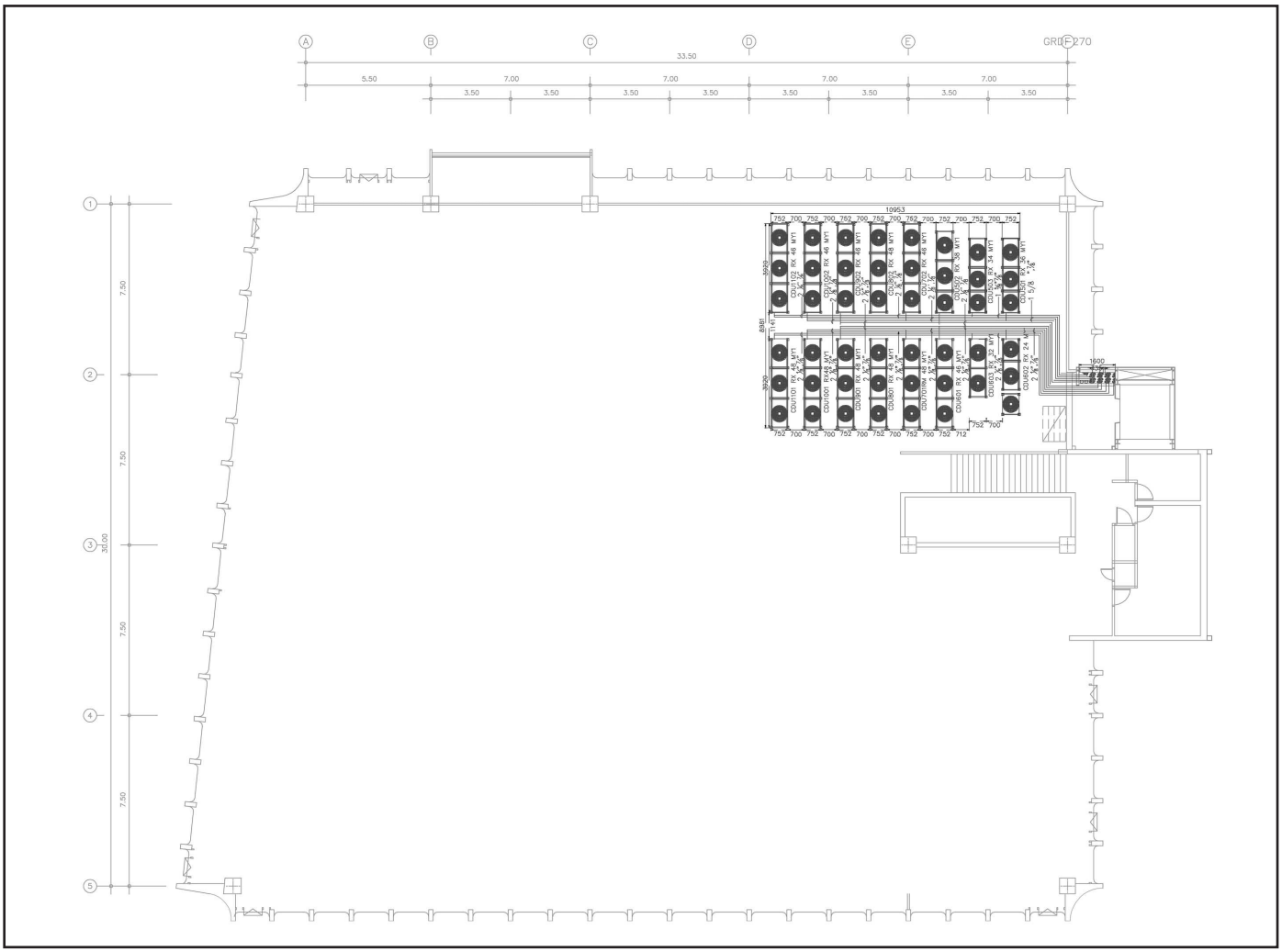


Fig-2 Rooftop Floor Plan

Project Commentary

The outdoor units for floors 1-4 were installed on the 7th floor roof, and on the building rooftop for floors 5-11. (See the 7th floor layout plan for reference.) The original facility had been built 35 years earlier. Machinery was occupying the third and fourth floors, but the owner considered this a waste of space, so the new system was introduced to remedy the situation.

Vinaline-Ocean Park

VIETNAM

Project Outline

Location	Hanoi, Vietnam
Number of floors	21F
Total floor area	37,000 m²
Date of completion	January, 2004

Equipment

Outdoor units	RXY16MY1 × 1 RXY32MY1 × 6 RXY34MY1 × 1 RXY48MY1 × 18	**Indoor units**	FXS80LVE × 61 FXS100LVE × 140 FXS125LVE × 62 FXM200LVE × 14 FXS250LVE × 16 VAM1000LVE × 12 VAM1500LVE × 33
Others	intelligent Manager		

Vinaline-Ocean Park

VIETNAM

Design Drawing

Shown below are the floor plans for floors 1-11F (fig-1,2) and rooftop floor plan (fig-3).
Duct type indoor units were used, with total heat exchangers for ventilation.

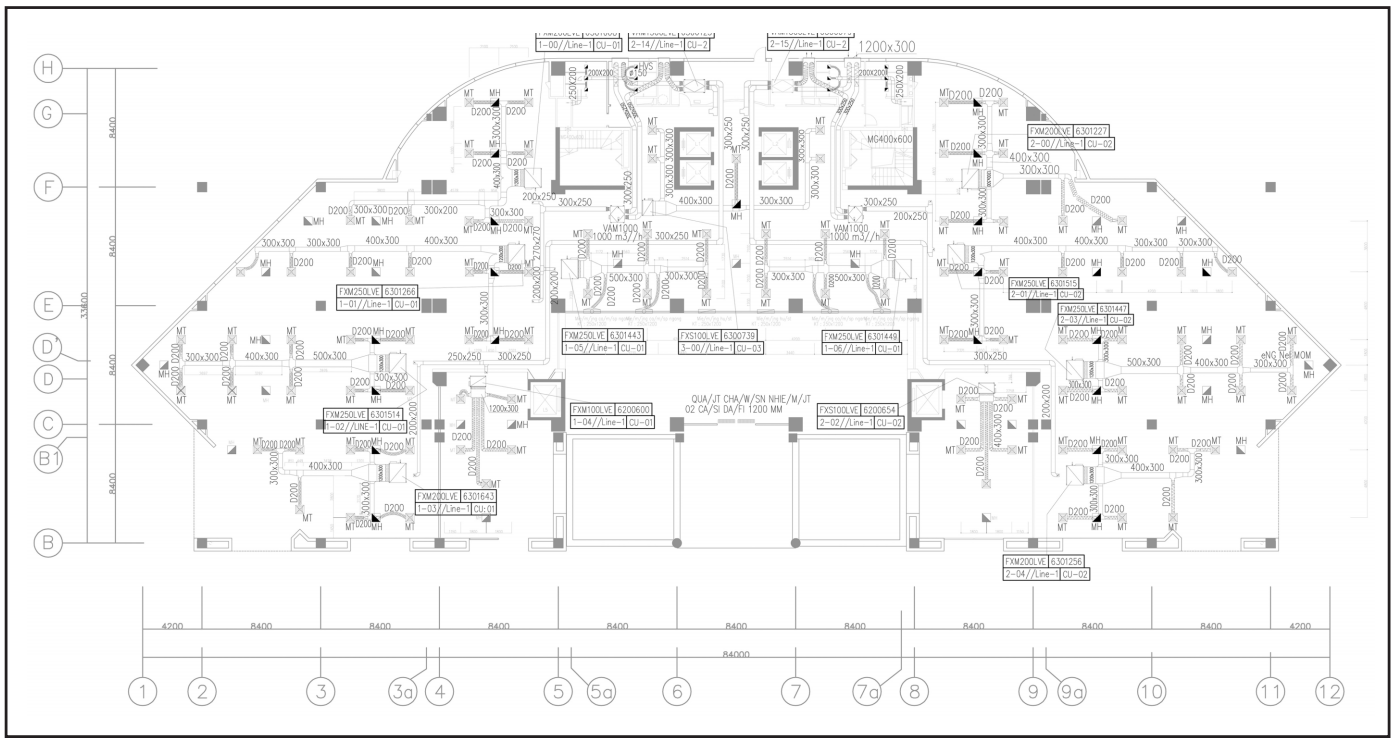


Fig-1 Floor Plan (1-6F)

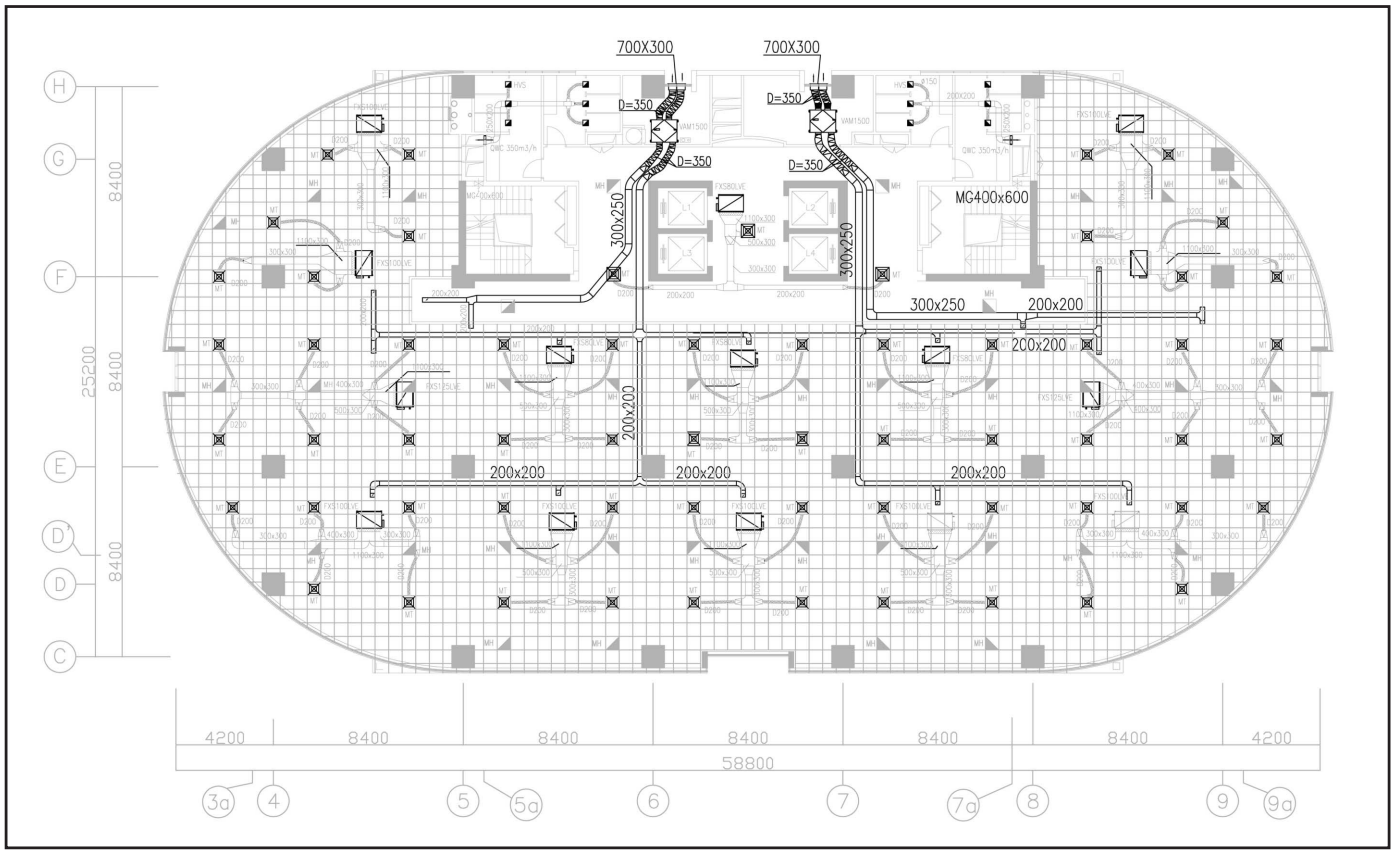


Fig-2 Floor Plan (6-11F)

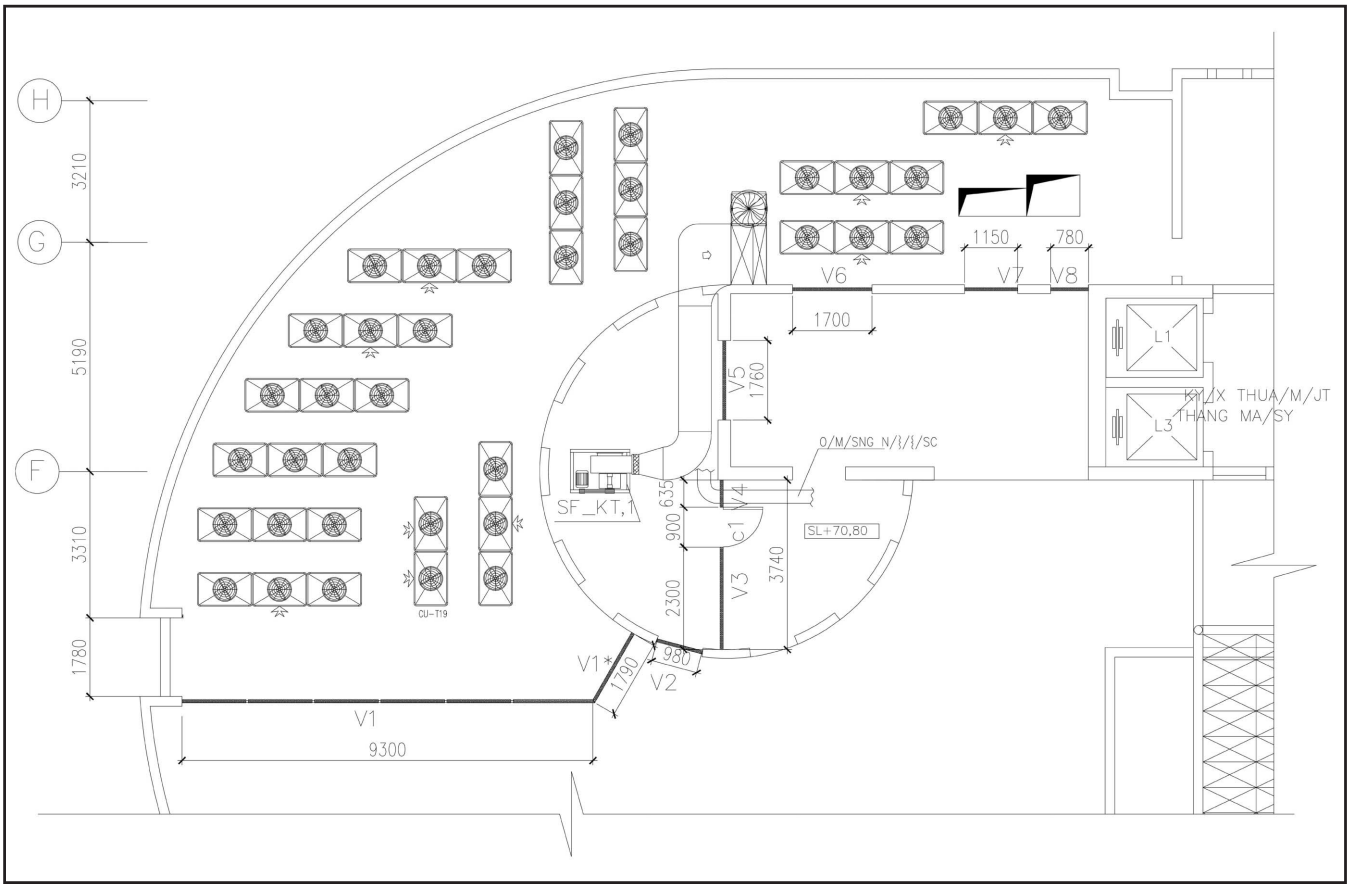


Fig-3 Rooftop Floor Plan

Project Commentary

This project is located in a very nice spot in Hanoi, close to Hanoi University of Technology and Lenin Park.

Initially, this project was designed to have a chiller system installed by another company. However, the Oikos contractor convinced the owner to switch to the VRV II system. Oikos has a good relationship with the owner. They gave a presentation to the owner and explained the benefits of using VRV for the office building, which included ***individual control, easy installation, flexible management, and space savings.***

OTHER COUNTRIES

Grand Bourg Building
Marcelo de Alvear 1430
ARGENTINA

Nissan Showroom
QATAR

Grand Bourg Building

ARGENTINA

Project Outline

Location	Buenos Aires, Argentina
Number of floors	16F
Total floor area	9,800 m²
Date of completion	December, 2003

Equipment

Outdoor units	RSXYP10LY1 × 16 RSXYP16KJY1 × 2 RSXYP10KY1 × 12	**Indoor units**	Ceiling Mounted Built-In Type (FXS-L) Ceiling Mounted Duct Type (FXM-L) FHY71BVE + RY71KUV19 × 2 FH100FVE + R100KV1 × 2 FH60FVE + R60GV1 × 1 FTXE35BVMA8 + RXE35BVMA × 2
Others	intelligent Manager		

Grand Bourg Building

ARGENTINA

Design Drawing

Shown below are the 5th floor plan (fig-1), rooftop floor plan (fig-2), elevation plan (fig-3), and piping schematic diagram (fig-4).
Both duct type and built-in indoor units were used on each floor, and all outdoor units were placed on the roof.

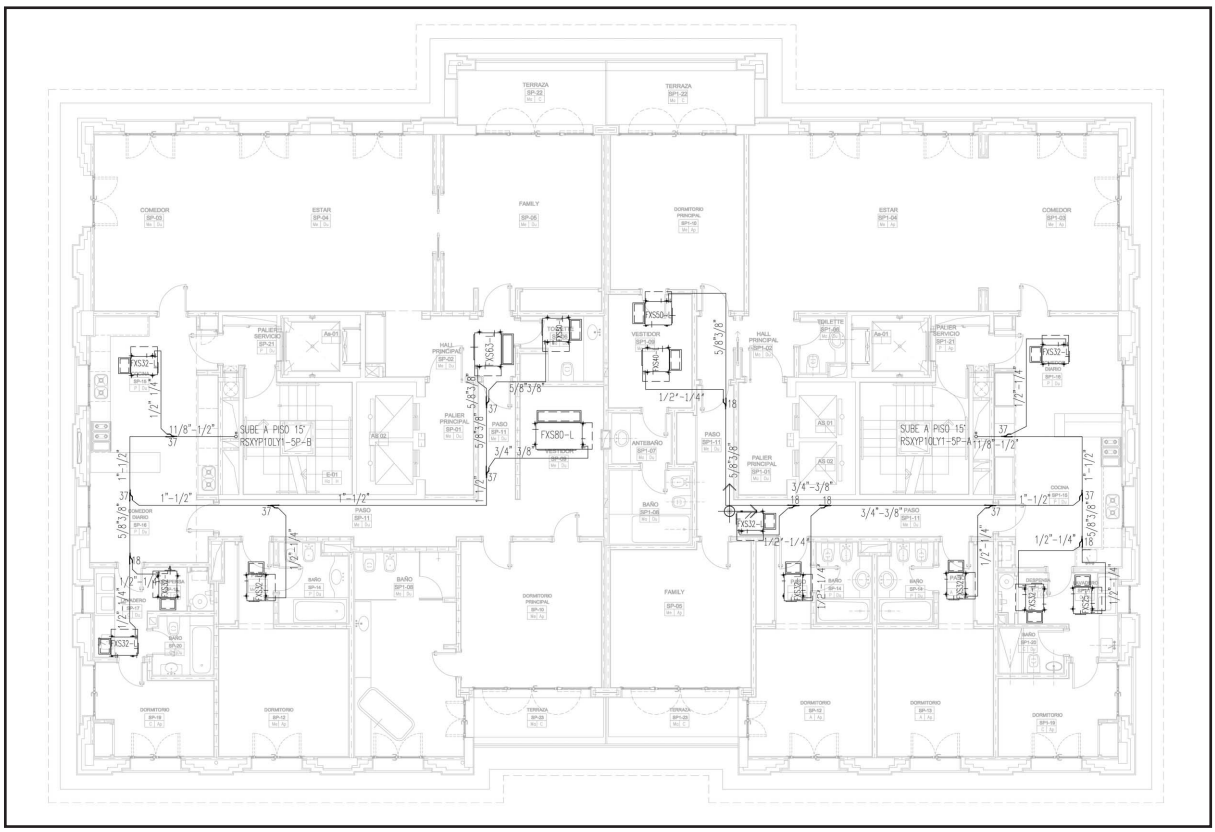


Fig-1
5th
Floor Plan

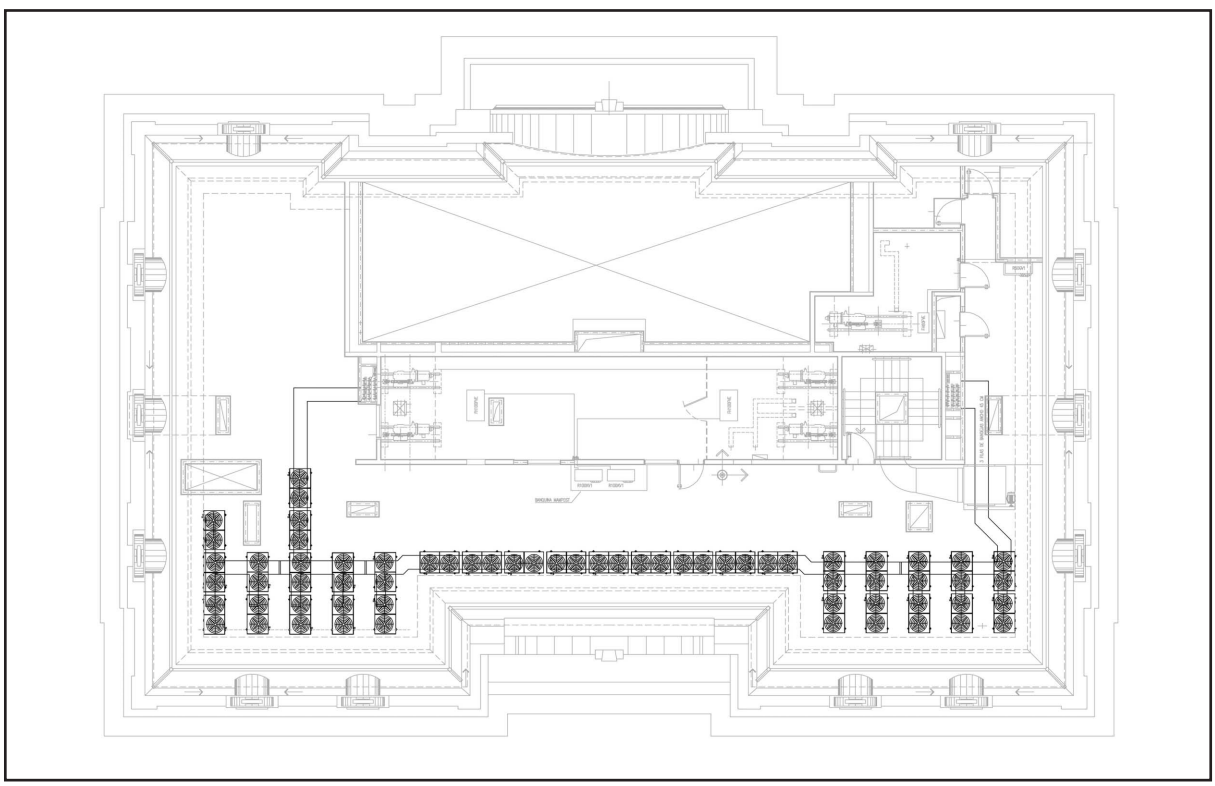


Fig-2
Rooftop
Floor Plan

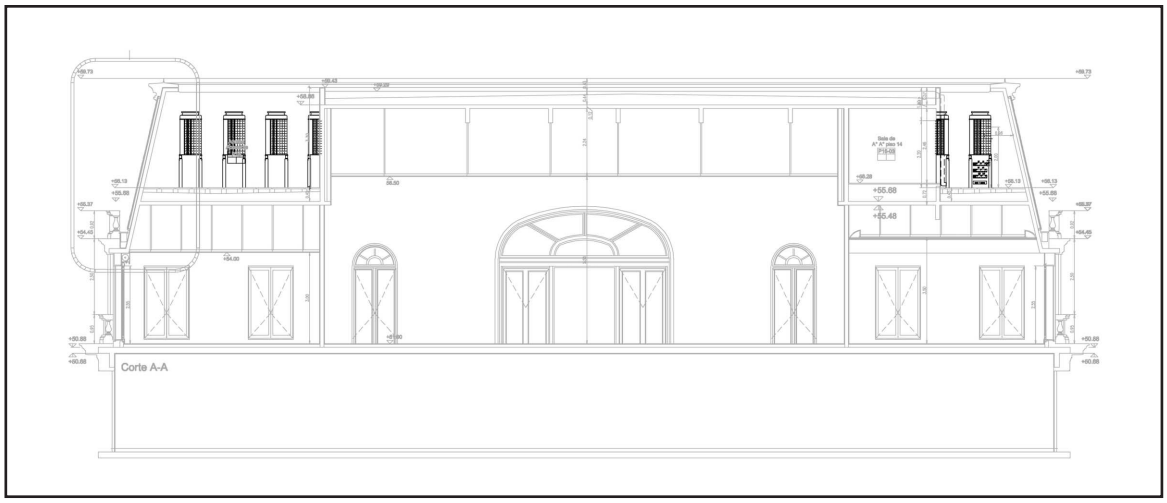


Fig-3
Elevation Plan

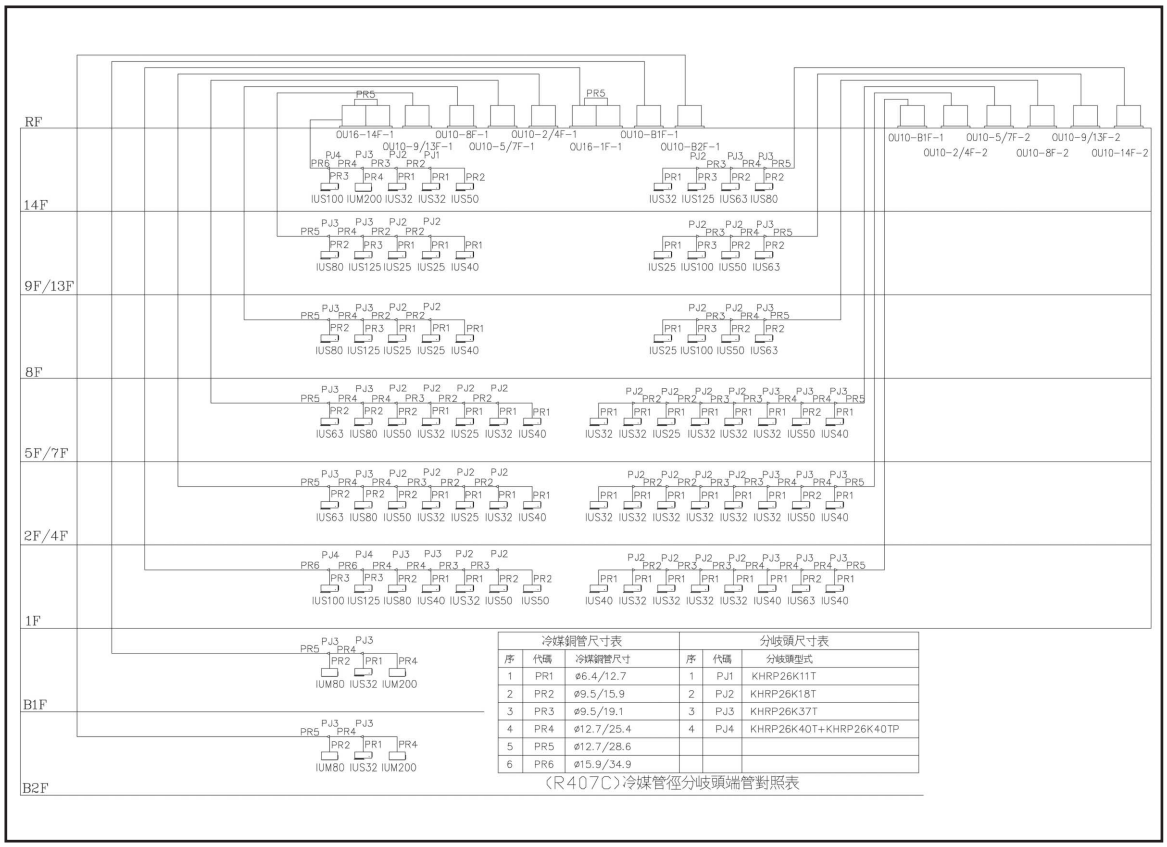


Fig-4
Piping Schematic
Diagram

Project Commentary

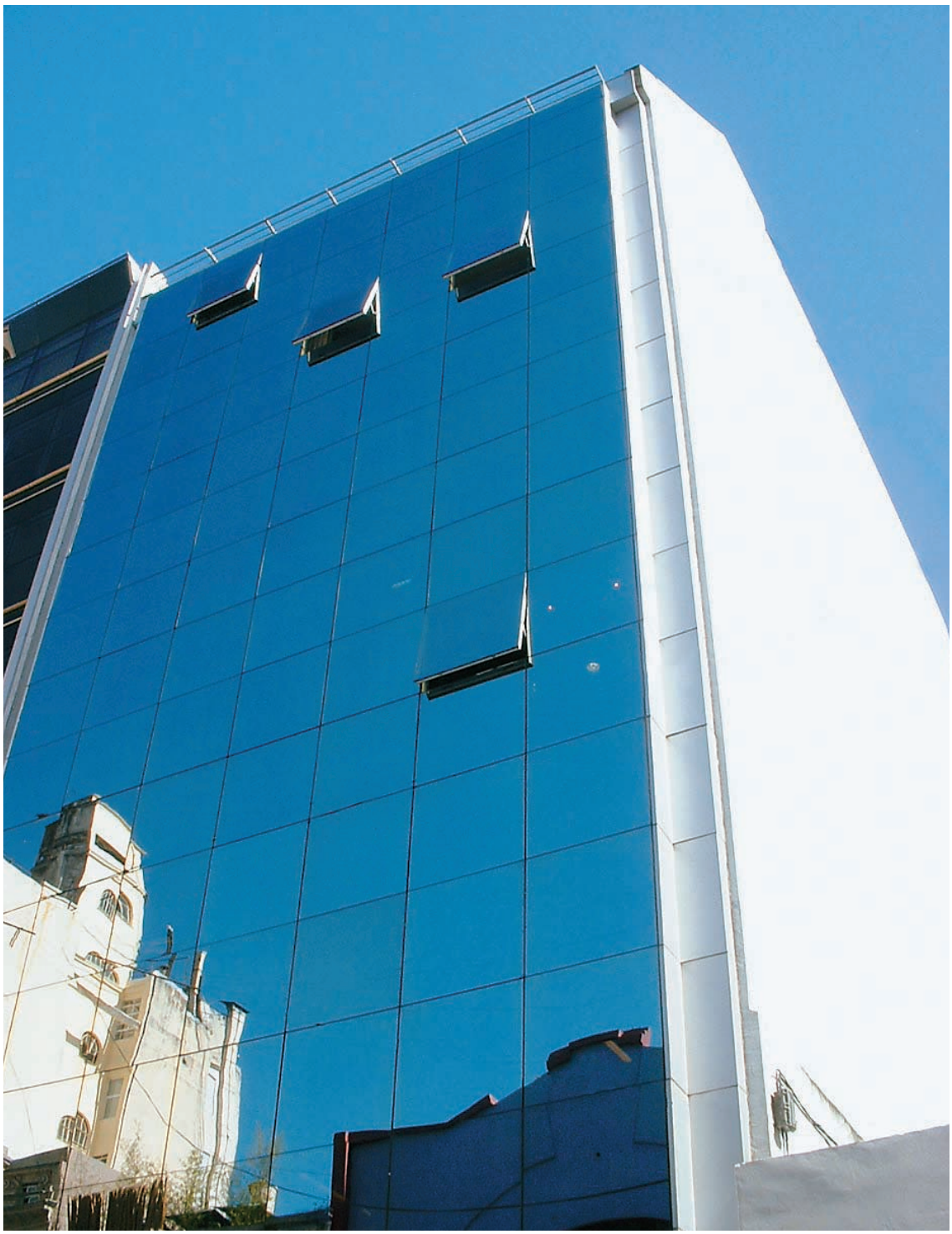
Initially, the building was planned with a water-cooled chiller system, but the client decided instead to go with a VRV system after considering the performance differences. The two systems were compared and VRV emerged as the more economical solution.

One key factor in choosing VRV was the low sound level of the system. Other factors were individual control of each delivery area and its flexible design to meet a wide range of needs. Moreover, the VRV system provides control of all indoor and outdoor units and offered a significant energy savings over the other system.

This apartment building aims to offer optimum conditions to attract families. Some famous Argentineans have bought apartments in the Grand Bourg Building, citing the great comfort it offers, and the VRV system plays an important part in that. The Grand Bourg Building has been a huge success.

Marcelo de Alvear 1430

ARGENTINA



Project Outline

Location	Buenos Aires, Argentina
Number of floors	10F
Total floor area	3,200 m²
Date of completion	December, 2000

Equipment

Outdoor units	RSXY10KY1 × 1 RSXY8KY1 × 18	**Indoor units**	Ceiling Mounted Cassette Type <Double-Flow> (FXYC-K) Ceiling Mounted Cassette Type <Multi-Flow> (FXYF-KB) Wall Mounted Type (FXYA-K) Floor Standing Type (FXYL-KJ) Ceiling Suspended Type (FXYH-KA)
Others	intelligent Manager intelligent Touch Controller DCS601C51 × 1 with DCS004A51 × 1 intelligent Touch Controller DCS601B5 × 1		

Marcelo de Alvear 1430

ARGENTINA

Design Drawing

The piping schematic diagram (fig-1) is shown below.
A total of 19 outdoor units were installed, with all units placed on the roof.

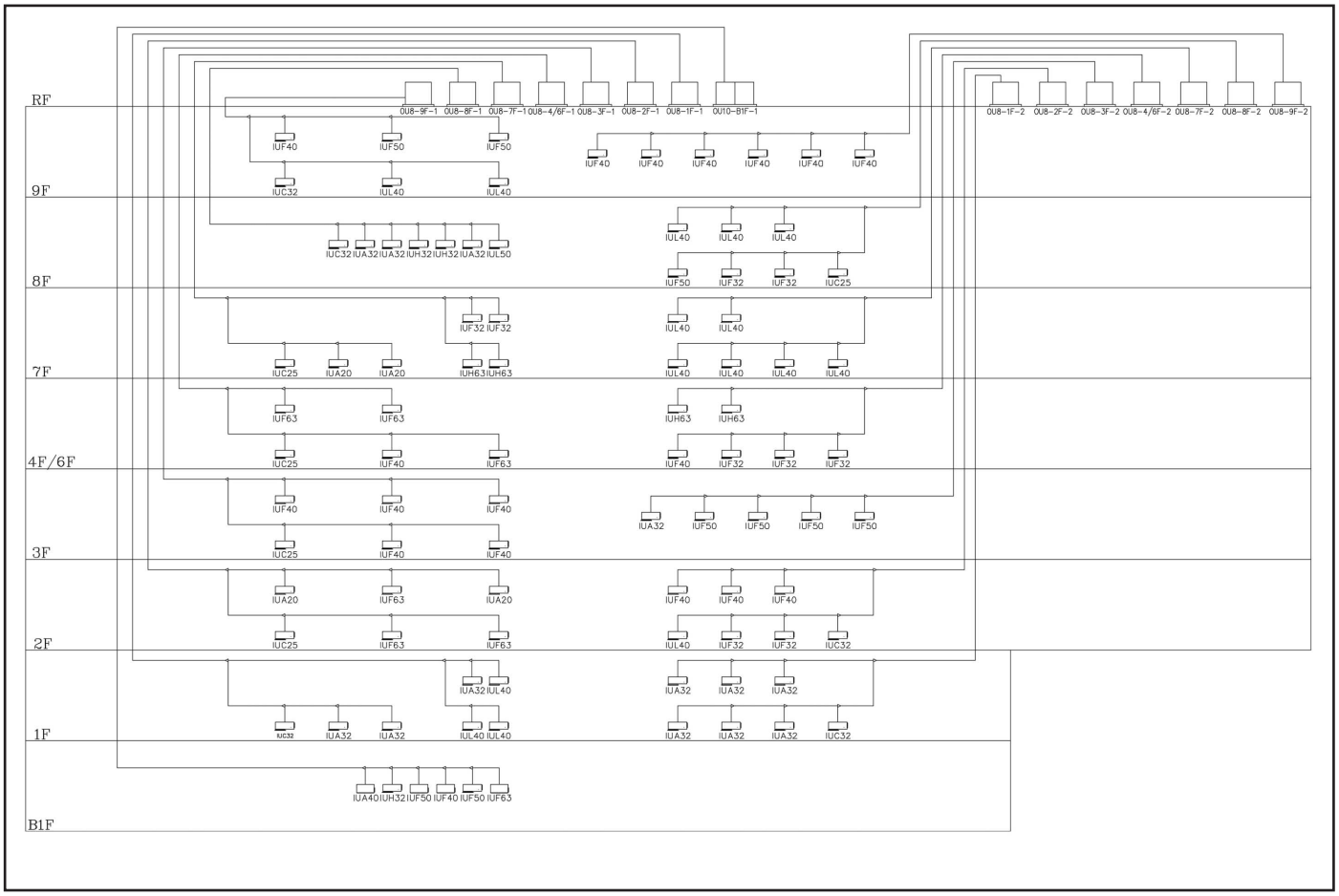


Fig-1 Piping Schematic Diagram

Project Commentary

Initially, the air conditioning project for the "Marcelo de Alvear 1430" office building in Buenos Aires called for a water chiller system, but a ***VRV system was soon considered for its many benefits. One of these was its low noise level.*** This building is situated in a residential area in downtown Buenos Aires. ***The VRV system offered the lowest noise level values without using any additional elements, such as acoustic walls. Another was the floor-by-floor system, which allowed the owner to rent a floor even before the building was finished. The energy savings was yet another factor. Besides the inverter technology, each indoor unit has its own individual controls, which reduces energy consumption by localising use.***

These characteristics of the VRV system offered the greatest flexibility, as the system could handle a wide range of capacities and a variety of indoor units as required by the building's architecture. In response to the urgent nature of the project, 19 outdoor units (between 8 and 10 HP) and 131 indoor units were installed.

Nissan Showroom

QATAR

Project Outline

Location	Salwa Road, Doha Qatar
Number of floors	4F
Total floor area	7,500 m²
Date of completion	2006







Equipment

Outdoor units	RXYQ10 × 54	**Indoor units**	FXMQ125 × 64 FXMQ100 × 51 FXMQ63 × 2 FXMQ50 × 8 FXSQ50 × 1 FXAQ50 × 1
Others	Bacnet Gateway		

Nissan Showroom

QATAR

Design Drawing

Shown below are the floor plan (fig-1), mezzanine floor plan (fig-2) and wiring systematic diagram (fig-3). This project is a showroom, so to provide air conditioning for the large space, duct type indoor units were used for both the ground floor and mezzanine. In addition, a VRV system was linked to the BMS through a Gateway BACnet.

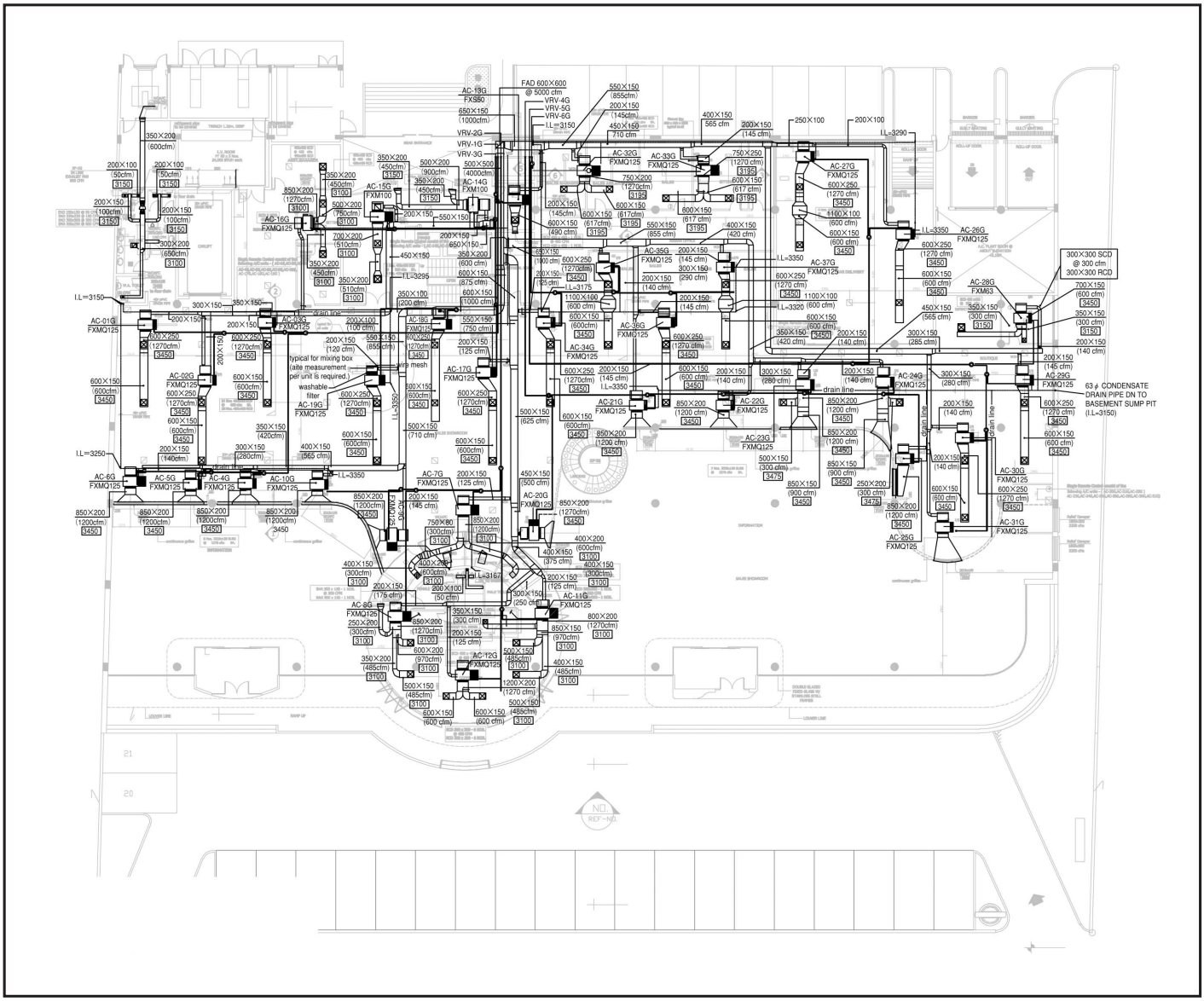


Fig-1 Floor Plan

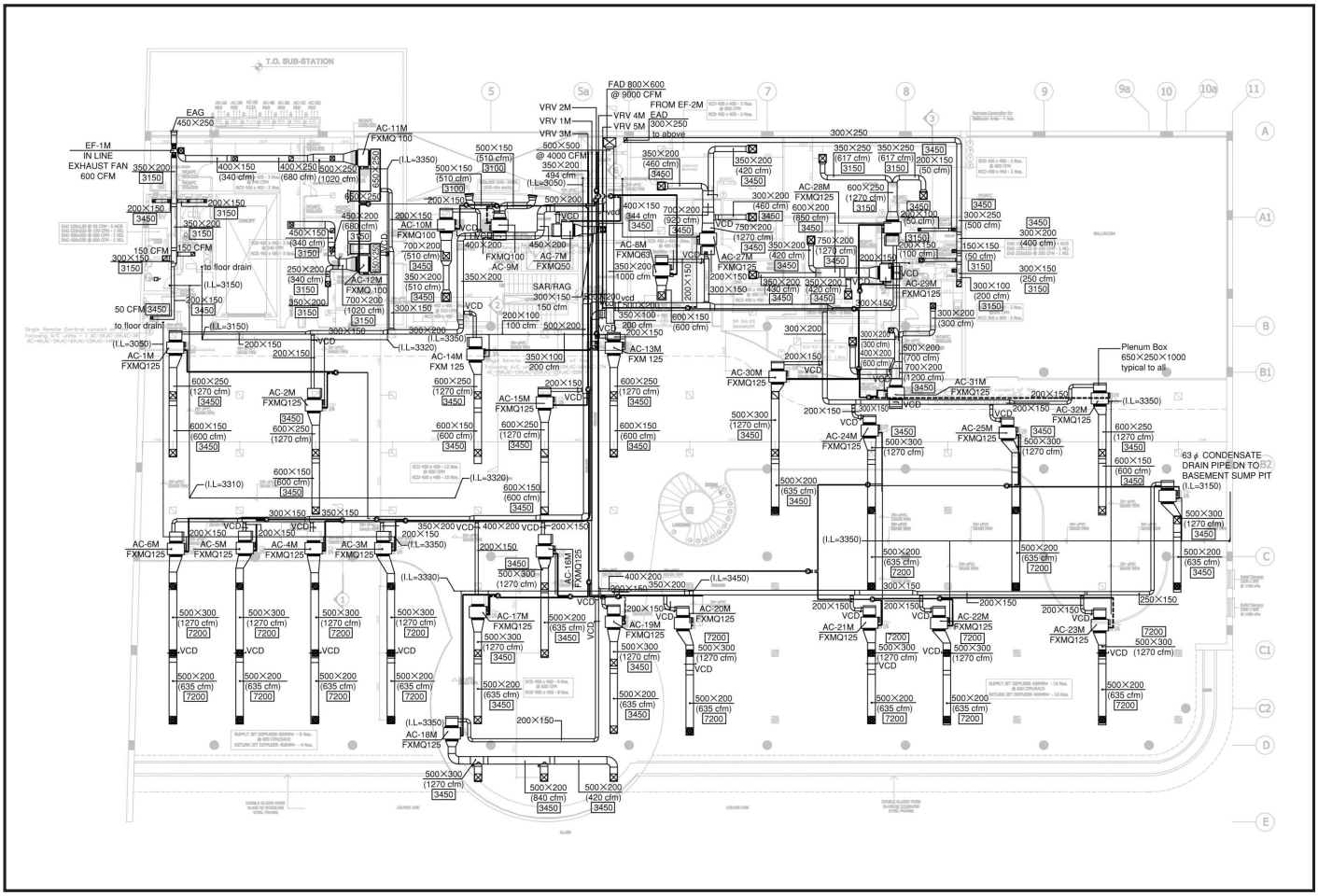


Fig-2 Mezzanine Floor Plan

Nissan Showroom

QATAR

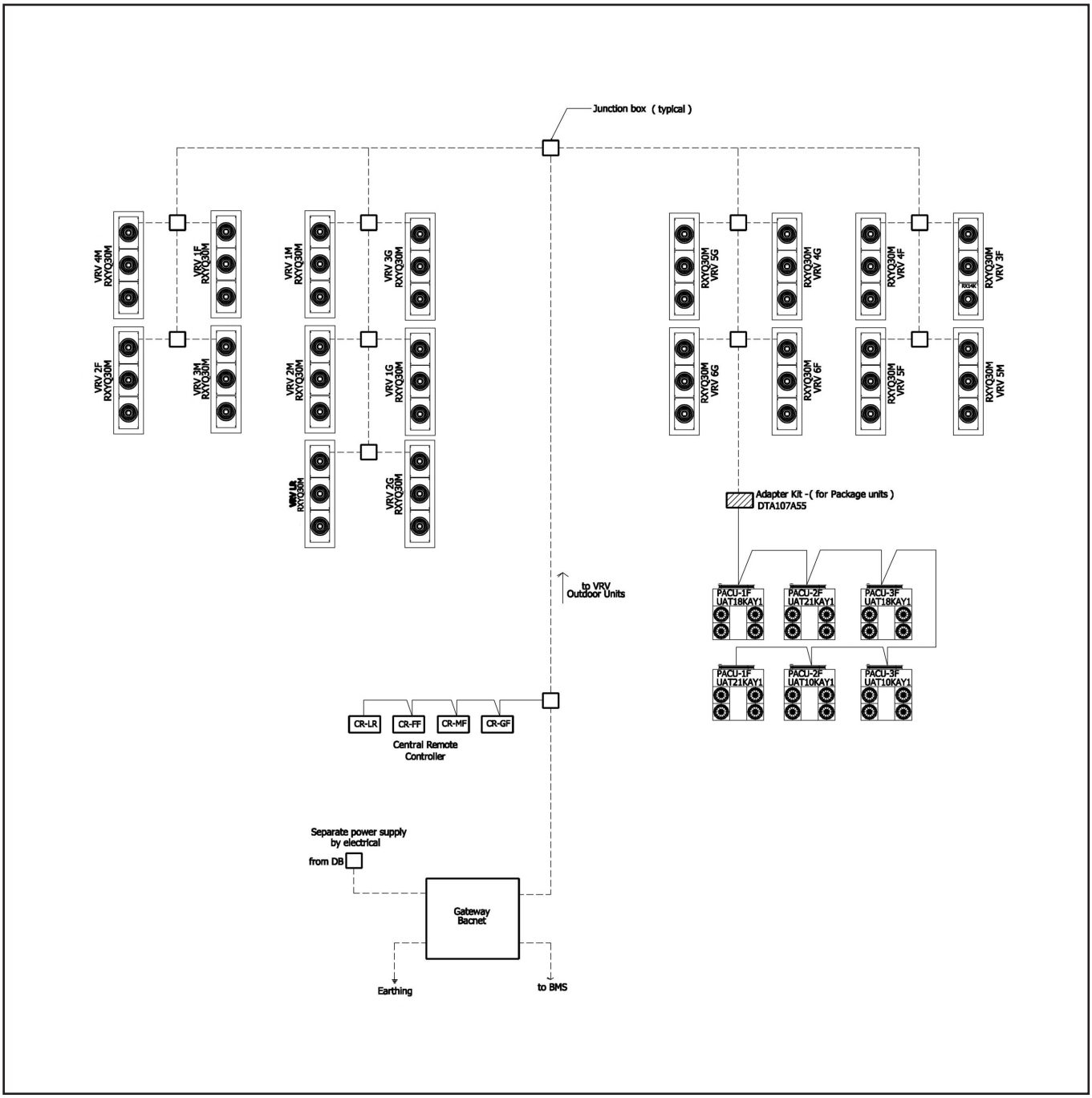


Fig-3 Wiring Systematic Diagram

Project Commentary

The Nissan Car Showroom is a rectangular-shaped building located on the busy street of Salwa Road in Doha, Qatar. It consists of a basement, ground floor, mezzanine floor and a penthouse with an area of 2500 m^2 per floor, except for the penthouse. The designer and manager of A/C Tadmur Company decided to use VRV II system units with R-410A refrigerant.

In addition, Gateway Bacnet was also installed in order to connect to their BMS control system. The design drawings were done in a very short time. Considering the complexity of the building, with its single, small shaft, big pipes could not be run up to the roof. Instead, ***the small refrigerant pipes of the VRV II system were suitable for the requirements of the building.***

JMI-0107

JQA-1452

EC99J2044

About ISO 9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the “design, development, manufacture, installation, and supplementary service” of products manufactured at the plant.

About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

DAIKIN INDUSTRIES, LTD.

Head Office:
Umeda Center Bldg., 2-4-12, Nakazaki-Nishi,
Kita-ku, Osaka, 530-8323 Japan

Tokyo Office:
JR Shinagawa East Bldg., 2-18-1, Konan,
Minato-ku, Tokyo, 108-0075 Japan

http://www.daikin.com/global_ac/

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