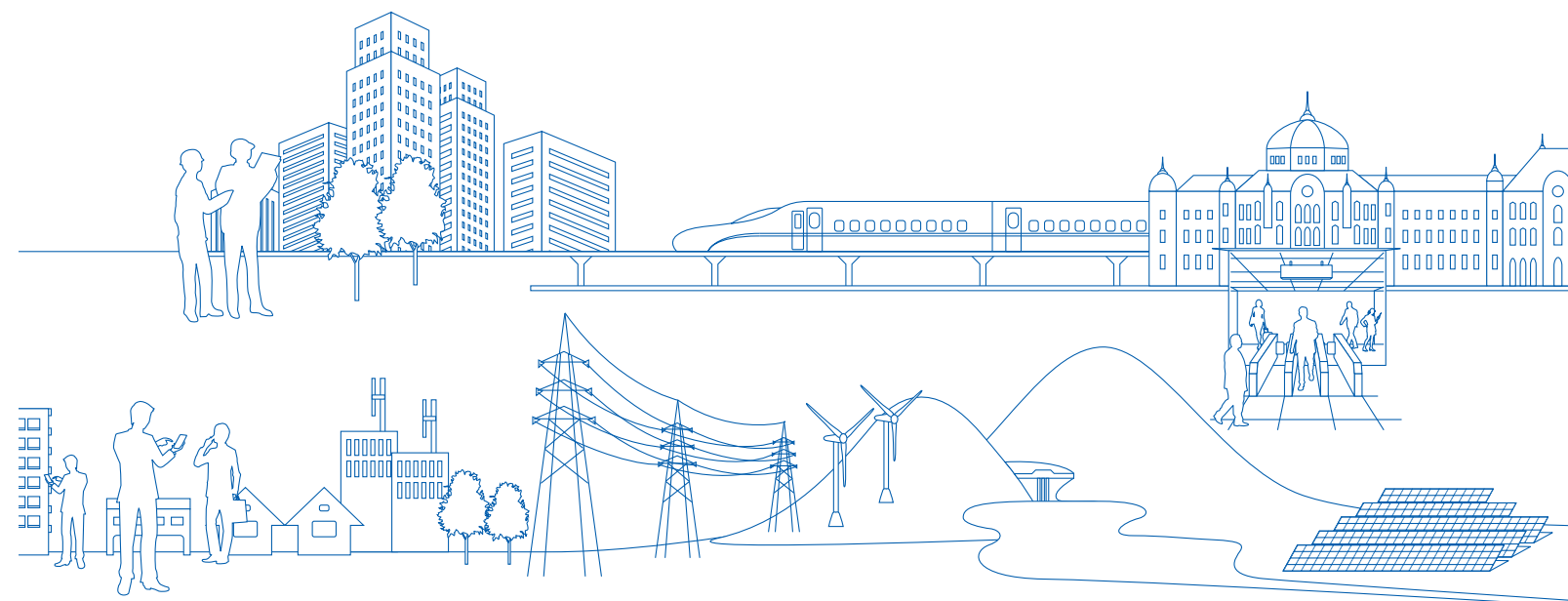


## NIPPON DENSETSU KOGYO CO., LTD.

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Tel. 03-3822-8811 (main) Fax. 03-3822-8960  
Homepage: <http://www.densetsuko.co.jp/>



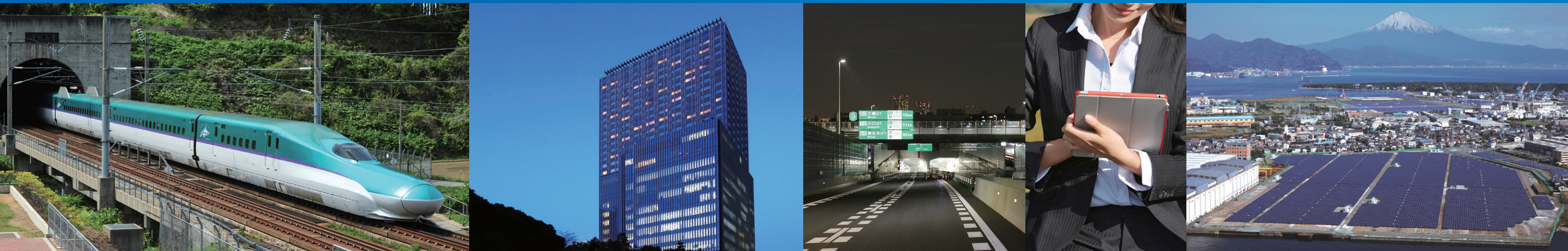
Linking infrastructure with life,  
and creating a comfortable living environment



**NIPPON DENSETSU KOGYO CO.,LTD.**

# Technology that supports a safer and more comfortable life.

NIPPON DENSETSU KOGYO aims to naturally blend itself into the lives of people to support a safer and more comfortable everyday life. What is required for this is continuous trust and quality, and we respond to the wishes of our customers with our cutting edge technology and human resources.



Since its establishment as a railway electronics equipment construction company in 1942, NIPPON DENSETSU KOGYO has led the domestic railway electronics construction industry. By leveraging the technological prowess acquired over these years, we have demonstrated comprehensive capabilities in transport infrastructure, including monorail, new transportation systems, expressway, and airport facilities, as well as in construction of electrical facilities for buildings requiring diverse and advanced technological skills, such as hospitals at the cutting edge of medicine, hotels and large office buildings installed with the latest equipment, and more. We have also expanded our field of business to telecommunications, which continues to make remarkable technological innovations. Through these activities we have received high praise as a comprehensive equipment-engineering corporation.

We have constantly accepted the needs of our customers with sincerity, and responded to their requests with planning, design/ construction/ inspection/ maintenance. In the future, technology is expected to further develop through diversification/ upgrading at an unbelievable pace. For this reason the demand for higher convenience as well as safer/ more comfortable and more eco-friendly facilities will increase. We will continue to anticipate the trends of our rapidly changing society and carry on with our untiring efforts in order to meet our customers' various needs, and above all prioritize their wishes.

Contents

Business Field .....	1-2
Construction of Electrical Facilities for Buildings .....	3-6
Construction of Information and Communication Systems .....	7-10
Construction of Electrified Railway Equipment .....	11-14
Human Resources Development .....	15-16



# Technology that further enhances the functions of towns and people's lives.

A safe/ comfortable life as well as business activities, communicating and exchanging information, enjoying shopping or leisure activities, smooth transportation with trains...  
Our business fields are all environments that require electricity/ communication that is essential in our everyday lives.

## Construction of Electrical Facilities for Buildings

Technology that controls lighting, air conditioning, security, and various other systems is needed to ensure the necessary safety and comfort of facilities supporting life and business. We adapt swiftly to the needs of our customers that change with the times and provide new technological solutions to challenges. Furthermore, we draw on the technological prowess developed over the years to offer technologies that make effective use of conserved energy and renewable energies.

## Construction of Electrified Railway Equipment

Railway infrastructure supports the foundation of society that connects cities with cities and local regions with town areas. Along with its safe as well as secure operations, we bear great responsibility for the lives of people using this system and transporting them to their destination on time. In order to fulfill these duties, our company conducts construction/ maintenance/ repairs regarding railway operations and continues to assist the safe/ secure transportations of railways with our complete support system. The technologies of our company are also used for the development of railway stations as well as town areas around the station for people to comfortably use the facilities in addition to improving the level of convenience, information services, and infrastructure.

## Construction of Information and Communication Systems

The importance of telecommunication technology continues to grow as new industries based on mobile communication networks and IP communication networks emerge. As the speed/ amount of information continues to develop, the construction of a more dependable infrastructure is required. Based on our solid technology developed through railway communication that constantly demands high reliability, we provide appropriate solutions to the field of Information and Communication Systems that continues to expand and produce innovative technologies.

## Technology Development

We work on strengthening mechanization that leads to the safety/ efficiency of constructions and develop technologies that coordinate construction knowhow.

## Human Resources Development

We run an original training facility in order to meet the increasing level of our customers' demands, and put strength into the development of personnel with high technical capabilities as well as knowledge.

## Associated Business

Apart from the operations of rental buildings/ apartments as effective utilization of real estates and being a corporation involved in fields related to facility construction, we respond to the demands of our customers through maintenance as well as management of buildings and facilities constructed by our company. As a company also that works on solar power generation systems, we build on our knowhow from planning to management, and provide our customers with the most suitable propositions.







## Construction Related to Renewable Energies

Interest in renewable energies is increasing all across Japan as part of the fight against global warming. Based on the technological capabilities we have developed over many years as an electrical equipment construction company, we make active efforts to promote and expand the use of renewable energies, such as solar, wind, geothermal, biomass, and small hydro powers.



Eniwa solar power generator [Hokkaido]



Kyodo Printing Co., Ltd. Goka Plant solar power generator [Ibaraki prefecture]



Ise Bay solar power plant [Mie prefecture]



JR Akita Shimohama wind power station [Akita prefecture]



Establishment of energy creation system at Oga Station [Akita prefecture]



Hamamatsu wind power generator [Shizuoka prefecture]

## Construction of Energy-Saving Buildings

We provide optimal energy-saving solutions for a range of customers by introducing new energy-saving technologies to our own buildings and conducting analyses and evaluations.



NDK Hiratsuka Building (BEI\*=0.68)

\*BEI is short for "Building Energy-efficiency Index." It is used as an indicator for evaluating the energy-saving performance of non-residential buildings.



NDK Morioka Building (BEI\*=0.73)

## ZEB (NET Zero Energy Building) Promotion for Low-Carbon Society

As a ZEB Planner, we strive to create a nature-friendly environment by promoting and achieving ZEB for realizing a low-carbon society.



## Air Conditioning and Plumbing Equipment Work

We carry out all kinds of air conditioning and plumbing work for train station facilities, training centers, schools, offices, residential facilities, and more. Regardless of the scale and usage of the equipment, we accurately capture the needs of our customers and offer not only comfort but also improved living spaces using eco technologies that save energy and other natural resources.



Air conditioning equipment work at Keisei-Ueno Station [Tokyo]



Air conditioner replacement at Shinjuku Line Kudanshita Station [Tokyo]



Installation of air conditioning system at Kunitachi city junior high school [Tokyo]

### Air conditioning equipment work

The optimal air environment differs by facility, such as office, data center, train station, and hotel. We install equipment that maintain and control an air environment suitable for each facility as well as air conditioning systems that save energy and reduce CO<sub>2</sub> emissions.



Turbo chiller



Boiler room



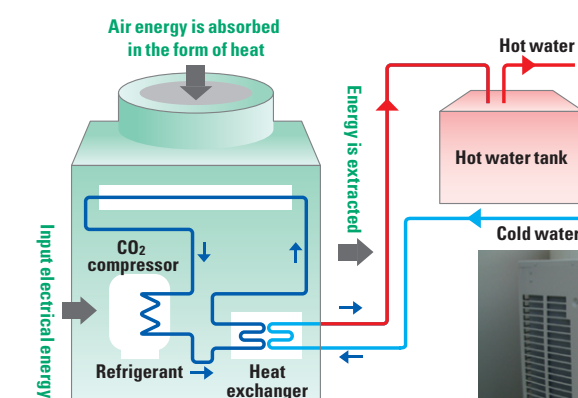
Server room air conditioning unit



AC outside unit

### Plumbing equipment work

We construct equipment that supply water which is essential to life, according to the size and use of the building. To save natural resources and energy, we propose utilization of rainwater and reclaimed water as well as installation of water-saving heat pump water heaters.



Heat pump water heater

A water heating system that utilizes natural refrigerant CO<sub>2</sub> and the heat of air to boil water efficiently.



Heat pump water heater



# Connecting people together and people with information more smoothly using more accurate technology.

Based on our solid technology developed through railway communication system constructions, we deliver the most suitable solutions in the further expanding field of telecommunications.

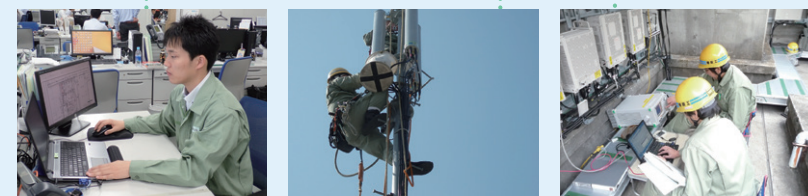
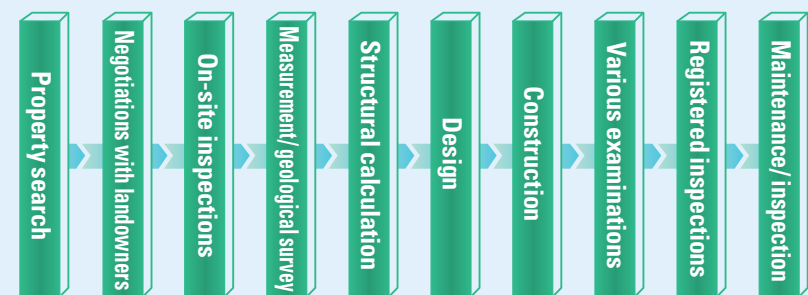


## Mobile Communication Related Construction

Mobile phones and mobile communication devices enable information exchanges and various services as a data communication tool, making them essential to modern day living. By covering the whole gamut from station placement research to design/ construction of mobile communication equipment, we contribute to the realization of a seamless telecommunication service tailored to a wide range of fields in the IT industry.

### Range of Constructions Related to Mobile Communication

We work on stable telephone call/ communication quality, wide service area, and further enlargement of capacity/ higher speed.



Mobile phone base station (steel tower)



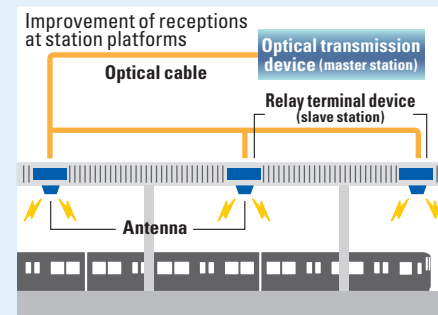
Mobile phone base station (building)

### Construction for the Improvement of Mobile Phone Receptions at Train Station Platforms and Within Shinkansen Tunnels

We carry out work for improving reception so that mobile phones can connect faster and more easily in any location while commuting to and from work or school and traveling on business trips.



Antenna, Relay terminal device (slave station), Optical transmission device (master station)



## Construction of IP Network Related Equipments

IP networks continue to evolve. The leading projects our company has been involved in since their launch include creating the LAN for the Suica system on station premises. We also create networks in a wide range of fields, including networks of administrative organizations such as local governments, support systems for medical organization systems such as at hospitals, systems for educational institutions such as universities, and disaster management information systems.



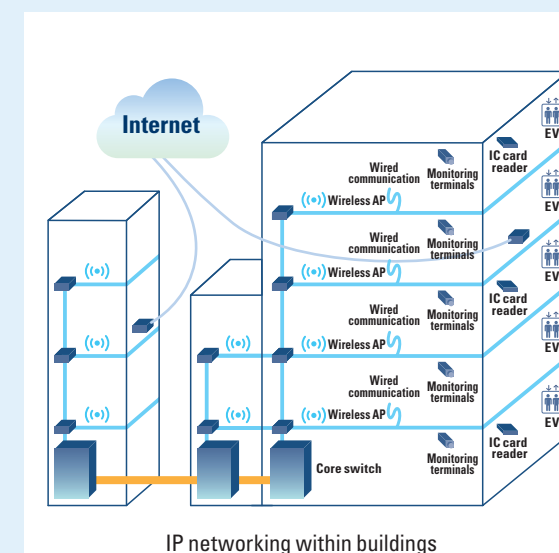
Server room



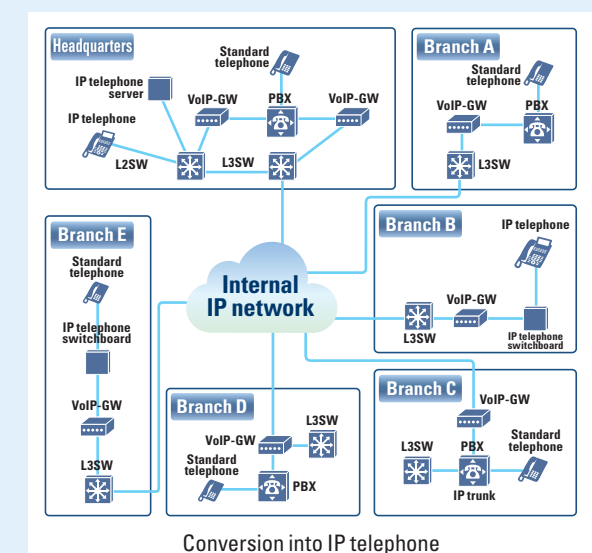
Automatic ticket gate

### Scope of Construction of IP Network Related Equipments

Apart from comprehensive operations ranging from network design to the selection of the type of equipment, construction, and connection tests, we also propose/ construct wireless LAN systems, various servers, and security systems.



IP networking within buildings



Conversion into IP telephone



## Construction Related to Network Infrastructure Development

We are engaged in a range of network infrastructure development projects. They include optical cables that support the informatization (faster and larger data transmission) of rail and communications companies, optical cable construction and laying for communicating road and river management data, and regional infrastructure development by local governments. Furthermore, we provide solutions, such as systems development for improving local disaster management and administrative services.

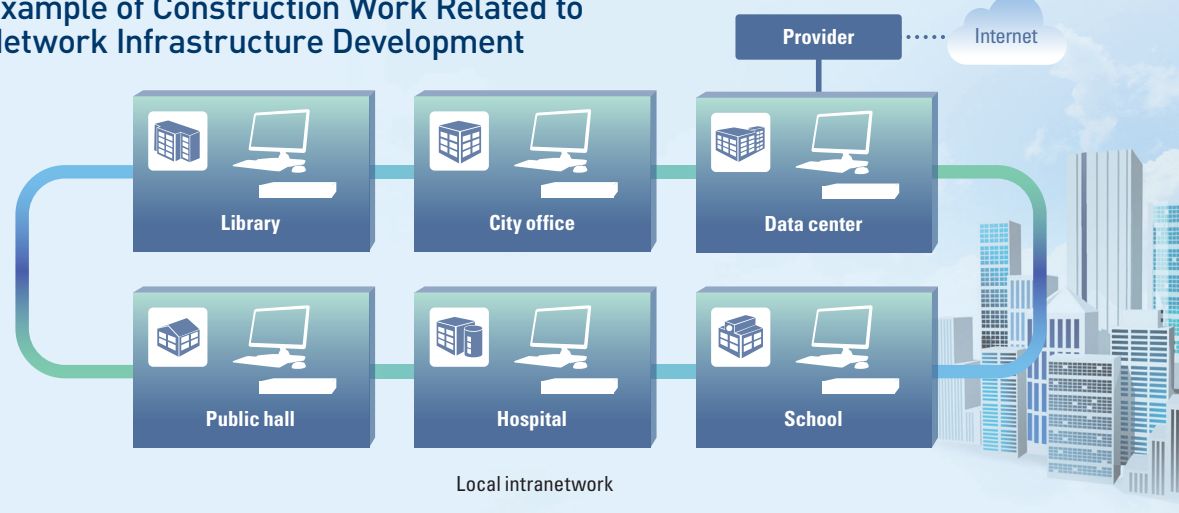


Installation of expressway emergency call box



Network rack

### Example of Construction Work Related to Network Infrastructure Development



## Maintenance Service (NDK Technical Support Center)

The next important service following IP network infrastructure development is maintenance and technical support. We provide maintenance service for system errors and failures 24 hours a day, 365 days a year. Our Support Center is always staffed with engineers so that customers and engineers can speak with each other directly and prompt actions can be taken.



Tokyo metropolitan area route map  
(24-hour management on PC device)



Phone service  
(Support center)



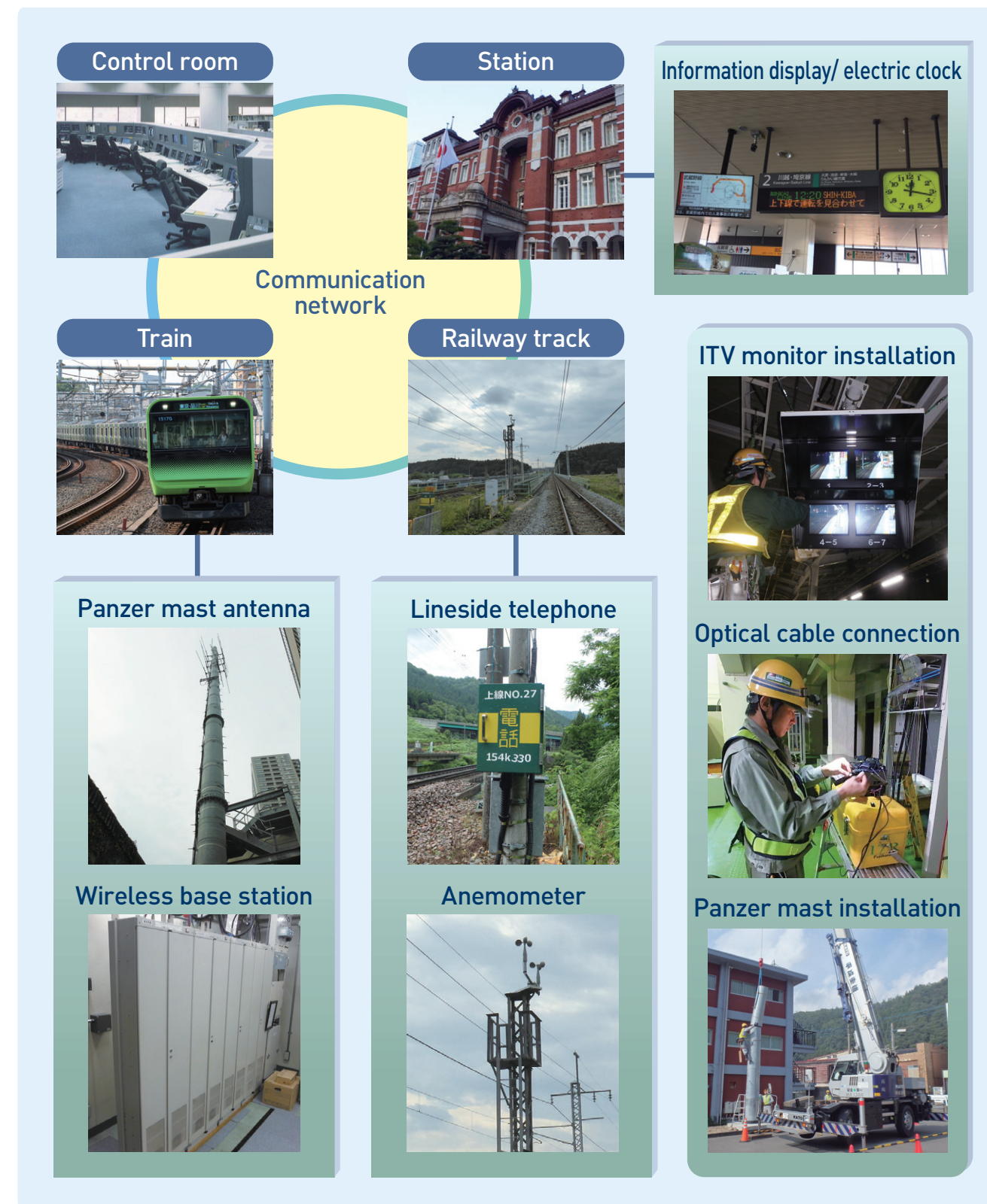
On-site service  
(Engineer)



In-station maintenance service

## Construction of Railway Communication Systems

Railway communication systems are vital technologies that enable safe and stable train operations and passenger services using communication networks and wireless systems. We carry out construction work that supports railway safety and stable transportation, harnessing our advanced technologies that have been developed over many years. They primarily include fiber-optic communication network, digital wireless system for communicating data with trains, disaster management information system for collecting data from devices such as anemometer and seismograph, information displays to help guide passengers at train stations, and security camera.





Providing railways that transport people safely/  
comfortably with our original knowhow and  
with more accuracy.

Electric power supply is essential for railway operations.  
For this reason we are involved with the design/ construction/  
inspection/ adjustment/ maintenance of all electric  
equipments including substations and control systems such as  
electric train lines and signals.

## Power Generation and Substation Construction

Power plants and substations are key facilities for the electrical power network of railway companies. Our company proposes construction plans for new establishments/ upgrade constructions for the latest power plant equipments that meet our customers' needs, and safely conduct our operations to provide high quality works. Especially in urban areas where limited space must be effectively used and the minimization of the exposure of the charging section is required, we display a higher level of construction skills that focuses on safety.



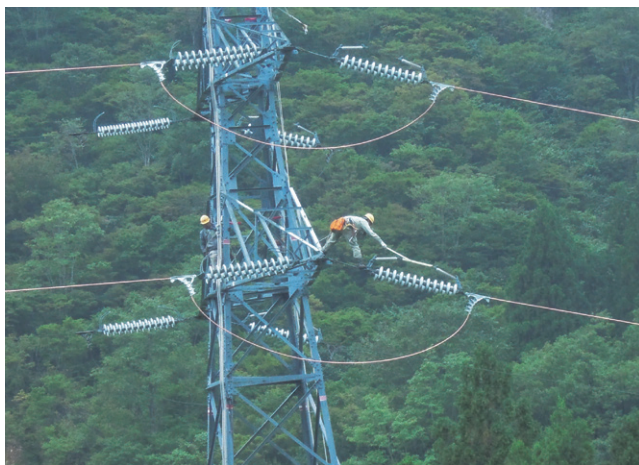
Senju Hydroelectric Power Plant



Shin-omiya substation (Tohoku/ Joetsu Shinkansen)

## Transmission Line Construction

Electricity is essential to people's lives. A transmission line makes up the core of an electricity network for transmitting the electricity generated at power stations to substations and to the electrical demand. Transmission lines are comprised of the overhead transmission line that lays power lines to steel towers and the underground electric line that lays cables on buried objects such as conduit lines. We give top priority to safety in constructing transmission lines customized to the respective local environment.



Overhead transmission line construction



Underground electric line construction

## Electric Train Line Construction

Electric train lines are equipments that supply electricity to trains from substations through pantographs. We design/ construct trolley lines that come in contact with pantographs, structures that support it, and electric power lines that supply electricity from power plants. We also use the latest road-rail vehicles for integrating constructions as well as aseismic reinforcement constructions that simplify/ unify structures of electric train line equipments. Our operations are conducted safely and efficiently.



Integrated construction



Aseismic reinforcement construction  
(new construction of beams)



Disaster recovery construction  
(2018 heavy rain in western Japan)

## Electric Light Power Construction

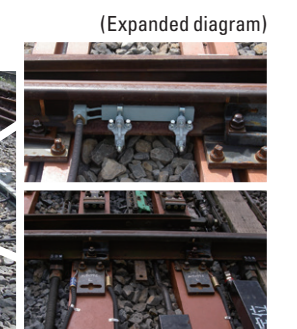
Electric light and power systems supply electricity transmitted to substations to station fixtures (lighting, train timetable, etc.) and critical railway equipment such as signals. They also include equipment for emergencies, such as emergency power generator. In addition to ensuring stable power supply, we carry out design thru construction of systems that allow for comfortable rail travel using the latest technologies.



High/ low voltage switchboard (Ueno Station)



Snow-melting device



(Expanded diagram)



Eco station (Urawa Station)



Train timetable (Tokyo Station)



## Signal Construction

Signal equipments are important equipments that support the safe and stable operation of trains. We carry out a wide range of operations from the replacing of old equipments to the new construction/ improvement construction of signal equipments using the latest electronic/ transmission technologies. We are also involved with new installation of network signal control systems using optical LAN information transmission and construction of wireless new generation train control systems using ATACS and other methods.

### Large-scale construction projects



Tokyo transportation control system  
(Tokyo General Control Center)



Railway crossing system (Joban Line earthquake  
restoration work)



Signal devices (Shinagawa Station)

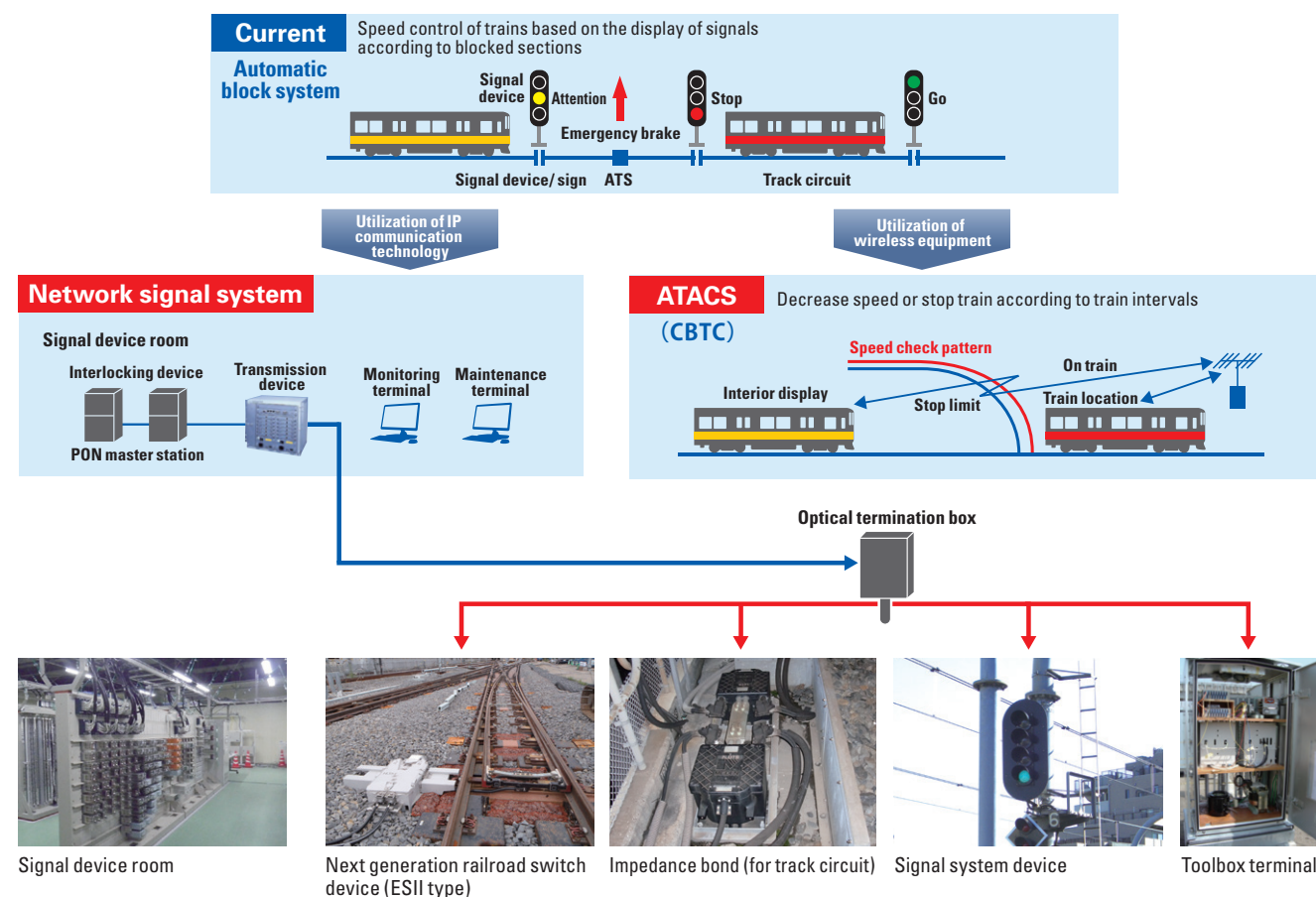


Railroad switch device (construction of overpass  
near Niigata Station)



ATACS (Saikyo Line)

### Signal device items using the latest technologies



## Public and Private Railways

### Our reliable technological capabilities service railways nationwide

We bring together our company's collective technological capabilities for the construction projects of public and private rail companies across Japan, including construction of new rail lines, extension of rail lines, grade separations, and renewal and repair of equipment, ranging from the planning to the design, technical support, and construction method proposal phases.



Sapporo City Transportation Bureau



Sendai City Transportation Bureau



Metropolitan Intercity Railway



Tokyo Metro



Tokyo Metropolitan Government Bureau of Transportation



Tokyo Monorail



Tokyu



Sagami Railway



Shizuoka Railway



Chizu Express



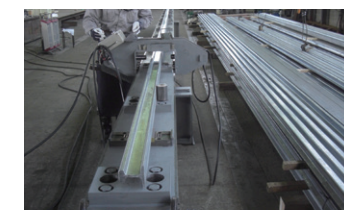
Nagasaki Electric Tramway



Tosaden Traffic

### Our overhead rigid conductor line for conductive steel rails eliminates maintenance

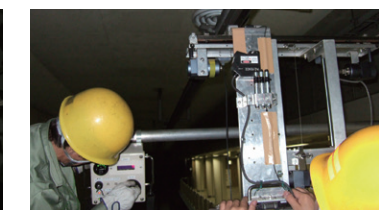
We have developed overhead rigid conductor lines to replace subway trolley wires, carried out consistent quality controls covering production, construction, and maintenance, and make them available to municipal subway systems throughout Japan. Furthermore, the equipment diagnostic device we have developed contributes to increasing maintenance efficiency.



Production of conductive steel rails



Construction of conductive steel rails

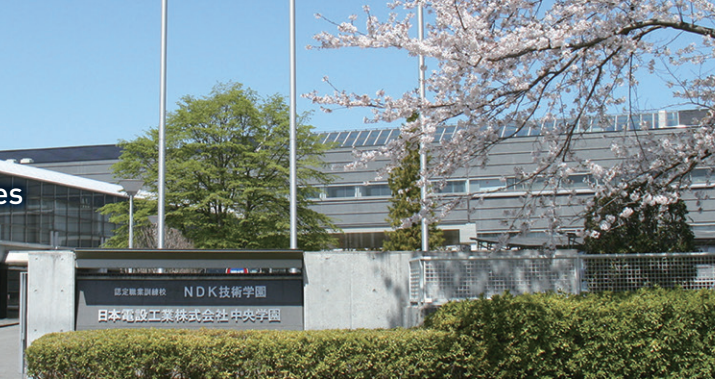


Maintenance inspection



# Contribution to the improvement of technological skills through human resource development at Chuo Gakuen.

Our company believes the development of human resources to be the core factor for corporate development, and for this reason we put much strength into education. Chuo Gakuen is an original training facility that proactively engages in the education of company staff.



## Develop Professionals of Electric Equipment Construction

Chuo Gakuen is our company's source of human resources that support our high-level technological capabilities. Beginning with the training of new employees, we also provide full educational courses for all employees such as training according to qualifications, training according to employment positions, specialized training, national qualification training and so on. There is also the vocational training school accredited by the Tokyo metropolitan government, "NDK Gijutsu Gakuen", established for the purpose of maintaining/ passing on/ developing technological skills for actually carrying out construction operations. The school accepts students from other companies in the same industry as well as partner companies, and we contribute to the improvement of technology/ skills of the entire industry through the development of electrical equipment construction professionals.



Outdoor training facility



Building electricity equipment training room



Wireless radio station training facility



Rigid electric train line training facility



Safety rules exhibition room



Electricity training facility

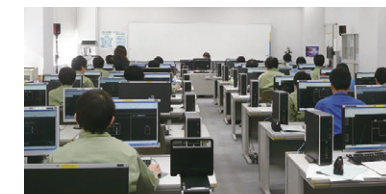


High elevation training facility

## Educational System of Chuo Gakuen/ NDK Gijutsu Gakuen

Starting with education for new employees, we have an educational system that encourages stepwise development of beginner, intermediate, and advanced level employees. For the education of new employees in technical positions, the category for construction of electrical facilities for buildings requires 6 months, the category for construction of information and communication systems requires a total of 7 months, and the category for construction of electrified railway equipment requires 1 year to acquire the basic technological abilities and skills. From the second year, more practical technological abilities and skills required for each construction field are learned.

Classroom training



Category for construction of electrical facilities for buildings



Category for construction of Information and Communication Systems



Category for construction of railway electronics



Power generation and substations



Transmission lines



Electric train lines



Electric light power



Communication



Signal

## Support for Railway Employee Skills Succession

We adapt our programs flexibly to changes in industry structure. We propose technology and skills curriculums that not only increase the technical abilities of employees but also help pass down the skills of railway operator employees. Based on the wishes of railway operators, we offer curriculums consisting of trainings conducted at our Chuo Gakuen and employee trainings conducted at railway operator sites.



Lecture



Electric train line training



Signal training