

# *Building Services Sector*

“Whatever good things we  
build end up building us.”

*Jim Rohn*

All amenities inside a building which make it safe and sustainable come under the purview of "building services." A building is not just a shelter, rather it provides an environment where people can live, work and get comfort with minimum impact of the external environment.

In the Building Services Sector, NESPAK has been providing engineering consultancy services both in Pakistan and abroad since 1975, a couple of years after its establishment. NESPAK has established its building services setup at Lahore, Karachi and Islamabad. The Company offers consultancy services in the Kingdom of Saudi Arabia and State of Qatar through its overseas offices. The Building Services Sector provides specialty input on mega projects related to energy, transportation, health, education, environment and recreation.

Due to realisation of the importance of building services by the clients, particularly in the new high-rise buildings, the Building Services Division at NESPAK has been offering consultancy services through direct bidding since 2008.

NESPAK has over 40 highly qualified and experienced professionals who have made distinct contribution by rendering services for design, installation, operation and monitoring of the mechanical, electrical and public health systems required for the new-age buildings.

NESPAK has undertaken more than 275 projects in the Building Services Sector in Pakistan and foreign countries. The number of completed projects is more than 260 while almost 15 jobs are under construction.

NESPAK offers integrated design services with special focus on health, energy conservation and eco-friendly environment for all types of buildings. These services

include all facets of project implementation from planning and design to final testing, commissioning and operation in the following fields:

- Heating, Ventilation and Air-conditioning (HVAC)
- Fire Alarm and Firefighting Systems
- Elevators, Escalators and Travelators
- Platform Screen Doors and Automatic Platform Gates
- Building/Energy Management System
- Building Energy Conservation/Audits

Following are NESPAK's detailed Scope of Services and Experience in the Building Services Sector.

## SCOPE OF SERVICES

**Conceptual Design:** Design services cover identification of the project requirements and evaluation of best practices dependent upon the nature of the project and detailed analysis of different services/systems. The services also include presentation to the Clients for selection of the best solution, detailed study of modern design criteria with implementation mechanism, economic and financial analysis, value engineering, environmental impact and project optimisation as part of design reports.

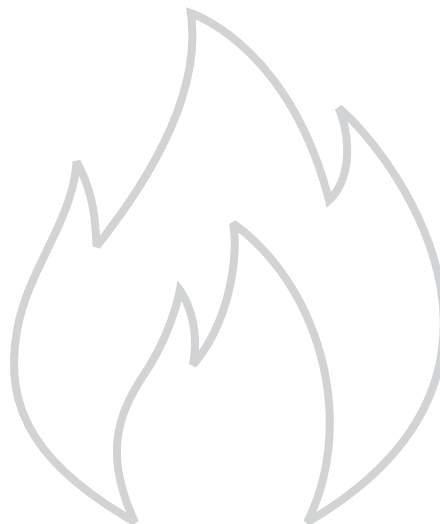
**Coordination:** Coordination with all stakeholders and relevant project management divisions during the preliminary design of the project, covering estimated structural loads, space openings, electrical connections, drain connection details and details of other works by builders to facilitate construction works.

**Engineering Design and Related Services:** Preliminary and detailed design, drawings, specifications, cost estimation, technical sanction documents, design review, construction supervision, pre-shipment inspection, testing and commissioning, operation and maintenance, approval of Operations and Maintenance (O&M) manuals, quality assurance and control.



**Procurement:** Bidding documents for procurement of engineering works according to the guidelines of various institutions/agencies, i.e., the World Bank, the Asian Development Bank, Fédération Internationale Des Ingénieurs-Conseils (FIDIC), Pakistan Engineering Council (PEC), e.t.c. These include prequalification documents for consultants/operators, bidding documents for supply, installation, testing and commissioning and bid evaluation reports.

**Construction Supervision:** Detailed construction supervision includes resident/top supervision for the installation of works, approval of technical submittals for equipment and materials, approval of shop drawings and as-built drawings, submission of work progress reports, verification of contractor's bills, testing and commissioning of the whole system and the project closure reports.



## EXPERIENCE

NESPAK's experience in building services consultancy covers all domains of engineering as mentioned below:

**Transport Facilities:** Design and construction supervision services for escalators, platform screen doors, firefighting and lift works on the Metro Bus Service System, Lahore, Rawalpindi-Islamabad Metro Bus Project, New Islamabad International Airport, Sialkot International Airport and Air Traffic Control at the Quaid-e-Azam International Airport, Karachi.

**Power Plants:** Design, design review and construction supervision services for air-conditioning, ventilation, firefighting, lift works and controls for power plants namely Mangla Dam Raising Project, 425MW Combined Cycle Power Plant, Nandipur, 747MW Combined Cycle Power Plant, Guddu, New Bong Escape Complex, Azad Jammu and Kashmir and 840MW Suki Kinari Hydropower Project. Design review of HVAC and firefighting systems for RLNG-based 1180MW Combined Cycle Power Plant (CCPP) at Bhikki, RLNG-based 1230MW CCPP at Balloki and RLNG-based 1233MW CCPP at Haveli Bahadur Shah.

**Healthcare Facilities:** HVAC System, fire-alarm, firefighting, lifts, Building Management System (BMS) have been designed and supervised, considering requirements for healthcare facilities. Major projects undertaken by NESPAK are Saudi-German Hospital, Kingdom of Saudi Arabia, Naeb Amin Ullah Khan Logari Hospital, Afghanistan, Federal Government Services Hospital, Rawalpindi, Emergency Block at the District Headquarters Hospital, Bahawalnagar, Services Institute of Medical Sciences, Shaukat Khanum Memorial

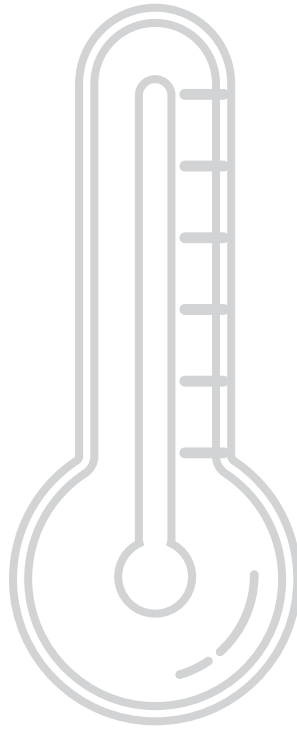
Cancer Hospital, Lahore, Lahore General Hospital and Kidney Centres at Peshawar and Quetta.

**Educational, Commercial and High-rise**

**Buildings:** HVAC System, fire-alarm, fire-fighting, lifts, BMS have been designed and supervised for more than 30 projects having covered area of 30000 sft. to 1000000 sft. The buildings include institutes, offices, shopping malls, sports complexes, expo centres, e.t.c. Important building projects include IT Tower, Fatima Jinnah Institute of Dental Sciences, Sharif Medical and Dental College, Makro Cash and Carry, Forensic Science Laboratory, Aiwan-e-Iqbal Complex, Lahore, National University of Science and Technology (NUST), Pakistan Institute of Trade and Development, Pakistan Telecommunication Tower, National Bank, PTCL Headquarters, Islamabad, Jalozi Campus, Peshawar, NICL Building, Karachi, ABM Military College and Al-Arabi, Al-Sadd and Al-Sailiya Sports Clubs, Qatar.

**Cold Storage:** NESPAK has been rendering services for industrial refrigeration systems for cold storages, process cooling, water chilling and individual quick freezing systems. The Company has the capacity to interface with flash freezing systems such as cryogenic freezing and nitrogen immersion systems. Services such as forced air cooling, portable and modular ice plants, stand-alone industrial ice makers, hydro coolers and liquid ice systems have been provided for the Corn Complex, Pehur, Cold Storage, Ice Plant and Freezing Tunnel Complex, Peshawar, Cold Storage and Ice Plant Complexes in Mardan, Haripur and Swat and Tannery Complex, Jehangira.

**Clean Rooms/Laboratory:** Clean rooms/laboratory requirement from class "100" have been designed by NESPAK. All services are provided as integrated clean



room requirement in modern infrastructure for the National Institute of Laser and Optronics Project, Islamabad.

**Recreational Facilities:** NESPAK provided detailed design and construction supervision of HVAC works for the Greater Iqbal Park, an urban park located in the outskirts of the Walled City in Lahore.

**Building Energy Conservation/Audits:** NESPAK has developed Building Energy Codes of Pakistan for ENERCON. The Building Energy Audits have been conducted for the Pakistan Institute of Trade and Development, NUST, NESPAK House, Islamabad and NESPAK Foundation House, Lahore.

**Building Code of Pakistan-Fire Safety Provisions 2016:** As a member of PEC Task force, NESPAK made substantial contribution in developing the aforementioned Building Code.



## Punjab Institute of Neuro Sciences, Lahore General Hospital

## Rawalpindi-Islamabad Metro Bus Project

NESPAK carried out detailed design, tender documentation and construction supervision for 83 outdoor-type escalators, 83 elevators for disabled persons and 432 platform screen doors at 24 stations of the Rawalpindi-Islamabad Metro Bus Project along with their remote monitoring and control system. The project cost of these components was Rs. 2 billion. Same services were also provided for the HVAC, elevator and firefighting works for the Punjab Metrobus Authority building, Rawalpindi.



NESPAK provided construction supervision services involving HVAC, elevator and electrical substation works for the Punjab Institute of Neuro Sciences, Lahore General Hospital, Lahore. The HVAC plant comprised of water cooled screw chillers having cumulative capacity of 1170 TR. The project was completed at a total cost of Rs. 500 million.





## Peshawar High Court



NESPAK rendered detailed design and construction supervision services for the replacement of HVAC System, electrical works including generators, elevators, fire alarm and firefighting system at the Peshawar High Court. The design phase was challenging due to constraints owing to the rehabilitation nature of the job as well as for keeping the building fully operational during the course of the project. A new HVAC plant room was constructed, having 700 TR capacity under this Rs. 550 million project.

## PTCL Headquarters, Islamabad

NESPAK carried out project planning, detailed design and construction supervision for the rehabilitation of HVAC works at the Pakistan Telecommunication Company Limited (PTCL) Headquarters, Islamabad. The HVAC plant capacity was 440 TR which was provided by three dual-fuel-fired absorption chillers. The project was completed while keeping the PTCL Headquarters building fully operational.

## Punjab Police Integrated Command and Control Centre, Lahore

NESPAK provided design and construction supervision for elevator installation at the Command and Control Centre Building of Lahore Safe City Project. The elevator has capacity to carry 13 persons/1000 kg and serves all the floors.

