

Mechanical, Electrical, and Plumbing (MEP) Systems Design

Our expertise is in the areas of Heating, Ventilation, and Air-Conditioning (HVAC) design, Energy Management, Fire Protection, Plumbing, Single and Combined Cycle Gas Turbines design, and Building Systems Management for commercial, residential, institutional, and industrial applications.

Specific electrical engineering experience include the design of building electrical systems, industrial processes, as well as control, protection, metering, distribution, and energy management systems for power co-generation plants. Some of the projects include system analyses of existing electrical service systems, electrical engineering services for lighting retrofit at educational institutions, medical facilities, multiple unit residential structures, and office complexes.

Specific mechanical engineering experience include design of HVAC, EMCS, energy management, plumbing, fire protection, and building survey and assessment for residential, institutional, commercial and industrial facilities.



*Power Distribution Station
Facility Sorting and Distribution Center*



Mechanical, Electrical and Plumbing Systems Design Bessemer Court, Station Square Pittsburgh, Pennsylvania

Client Challenge

Urban Redevelopment Authority of Pittsburgh (Pittsburgh URA), in the Commonwealth of Pennsylvania is the facility and infrastructure development agency for the City of Pittsburgh. As has been very well documented by both federal and local government agencies, the population of metropolitan Pittsburgh has been declining since the late 1970s and early 1980s. This decline has been directly attributed to the decline of the Steel industry, of which Pittsburgh was a global leader.

As part of the comprehensive plan to revitalize the City of Pittsburgh, Pittsburgh URA entered into an agreement with Forest City Enterprises, a private property developer, to develop Station Square, a riverfront property in the City of Pittsburgh.

Scope of Work

Multi-Lynx Companies, Inc. began work on the Bessemer Court Station Square project on behalf of Forest City Bessemer Court Associates. Multi-Lynx was retained by Forest City to provide pre-design site visit and observation of existing conditions, with recommendations, for the proposed commercial and retail facilities. Multi-Lynx prepared ALTA Surveys, and Topographical Surveys for use in facilitating property acquisition for the development.



MEP Ducts



MEP Control Valves

Following property acquisition, and preparation of architectural drawings, Multi-Lynx then proceeded to prepare Mechanical, Electrical and Plumbing (MEP) systems design for the pedestrian bridge and observation tower facilities of the development.

In addition to the preparation of drawings and technical specifications for bidding and construction, Multi-Lynx also prepared the design for the stormwater drains for the roof and observation deck.



Housing Authority of the City of Pittsburgh (HACP) Architecture and Engineering Design Services Construction Management Services

Client Challenge

In 1984, four United States government agencies adopted uniform standards for the design, construction, and alteration of buildings so that physically handicapped persons will have ready access to and use of public buildings and facilities in accordance with the Architectural Barriers Act, 42 U.S.C. 4151-4157. The uniform standards eliminated the differences between the standards previously used by the four individual agencies, and between those standards and the access standards recommended for facilities that are not federally funded or constructed.

The four agencies that are authorized to issue standards under the Architectural Barriers Act include the following:

1. General Services Administration (GSA)
2. Departments of Housing and Urban Development (US HUD)
3. Department of Defense (DOD), and
4. United States Postal Service (USPS)

The four standard-setting agencies establish and enforce standards for design, construction, and alteration of particular types of buildings and facilities. The General Services Administration (GSA) prescribes standards for all buildings subject to the Architectural Barriers Act that are not covered by standards issued by the other three standard-setting agencies. United States Department of Defense (US DOD) prescribes



*Site Preparation Activities
UFAS Compliant Modular Housing Units*



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UFAS Compliant Modular Housing Units*

standards for United States Department of Defense installations. United States Department of Housing and Urban Development (US HUD) prescribes standards for residential structures covered by the Architectural Barriers Act except those funded or constructed by US DOD, and the United States Postal Service (USPS) prescribes standards for postal facilities. Each of the four agencies issues standards in accordance with its statutory authority.



To ensure compliance with the standards, United States Congress established the Architectural and Transportation Barriers Compliance Board (ATBCB) in Section 502 of the Rehabilitation Act of 1973 (the Rehabilitation Act), 29 U.S.C. 792.

The final rule that established the Guidelines now in effect was published in the United States FEDERAL REGISTER on August 4, 1982 (47 FR 33862) and is codified at 36 CFR part 1190.

The four standard-setting agencies determined that the uniform standards adopted by them would, as much as possible, not only comply with the Guidelines adopted by the ATBCB but also be consistent with the standards published by the American National Standards Institute (ANSI) for general use. ANSI is a nongovernmental national organization that publishes a wide variety of recommended standards. A committee made up of 52 organizations representing associations of handicapped people, rehabilitation professionals, design professionals, builders, and manufacturers develops ANSI's standards for barrier-free design. The standards, which are called ANSI A117.1, "Specifications for Making Buildings and Facilities Accessible to, and Usable by, Physically Handicapped People," are developed using the consensus process.

The original ANSI A117.1, adopted in 1961, formed the technical basis for the first accessibility standards adopted by the United States federal government and most state governments. The current edition, ANSI A117.1-1980, is based on research funded by US HUD. It has generally been accepted by the private sector and has been recommended for use in model state and local building codes by the Council of American Building Officials.



UFAS Compliant Duplex Units

In keeping with the objective of uniformity between federal requirements and those commonly applied by state and local governments, the Uniform Federal Accessibility Standards (UFAS) follows ANSI A117.1-1980 in format. The UFAS scope provisions, which establish the minimum number of elements and spaces required to comply with standards, and the UFAS technical requirements meet or exceed the comparable provisions of the Guidelines.

The UFAS was published in the United States FEDERAL REGISTER on August 7, 1984 (49 FR 31528).



UFAS Compliant Duplex Units



Each of the standard-setting agencies has taken action in accordance with its own procedures including internally-prescribed rulemaking and Administrative Procedure Act where applicable, to incorporate the UFAS in its own standards, regulations, or other directives.

General Services Administration adopted the UFAS in 41 CFR 101-19.6, effective August 7, 1984. Housing and Urban Development adopted the UFAS in 24 CFR part 40, effective October 4, 1984. United States Postal Service adopted the UFAS in Handbook RE-4, "Standards for Facility Accessibility by the Physically Handicapped," effective November 15, 1984. Department of Defense adopted the UFAS by revising Chapter 18 of DOD 4270.1-M, "Construction Criteria," by memorandum dated May 8, 1985.

Scope of Work

Multi-Lynx Companies, Inc. has been retained by the Housing Authority of the City of Pittsburgh (HACP) Pennsylvania, for architectural and engineering services for the construction of residential units, which must be Uniform Federal Accessibility Standards, UFAS-compliant units in multiple configurations. These are to be constructed at different scattered sites in the Manchester community, which is a designated National Historic District, and therefore must conform to neighborhood historical standards, which preclude single-story buildings. The structures therefore must have second floors that may be configured for the most feasible unit mix, subject to the approval of HACP.

The HACP receives direct funding from HUD, one of the UFAS standards-setting agencies.

Multi-Lynx has brought exceptional value to the execution of these task orders in that all the UFAS-compliant units have also been designed for LEED certification.



Mechanical and Plumbing Ducting Systems



Power Control and Distribution

By using innovative, creative, and state-of-the-art methodologies, Multi-Lynx Companies, Inc. is currently engaged with the tasks of design and construction management of several UFAS-compliant residential housing units for the Housing Authority of the City of Pittsburgh, HACP. Task orders issued by the HACP to Multi-Lynx include both new construction and renovation of existing housing units.

