



## Reference Details

**Owner** J.D. Carlisle Development Corp., New York, NY, USA +++  
**General Contractor** Century Maxim Construction, New York, USA +++  
**Engineers** DeSimone Consulting Engineers, New York, NY, USA +++  
**Architect** Perkins Eastman, New York, NY, USA

**DSI Unit** DSI USA, BU Post-Tensioning, Pompton Lakes, NJ, USA  
**DSI Scope** Supply of 35t of DYWIDAG THREADBAR® Ø36mm, grade 150: S 830/1035 N/mm<sup>2</sup> incl. equipment such as epoxy-coated anchor plates and couplers; rental of equipment; technical support



## Fast New York Pace Boosts Creative Construction Methods

**Construction of a new Residential and Commercial Building on 23rd Street / 3rd Avenue, New York City, NY, USA**

**Demand for luxury residential structures continues to be high in New York City. Extremely limited and expensive available building space has led to the purchase of air rights of neighboring properties. By doing so, investors have the possibility to maximize the useable floor space of their new buildings.**

Air rights of adjoining properties in the north and west were also bought for the new residential and commercial building on 23rd street / 3rd avenue. On a total area of 27,000m<sup>2</sup>, the 21 storey building offers room for 304 residential units and a large number of retail shops as well as a private fitness center.

In order to fully profit from the air rights, this building was cantilevered over the neighboring buildings. The floor slab of the 6th storey cantilevers over the existing building to the North, while the floor slab of the 16th storey cantilevers over the building to the west.


The building's construction method allows 200mm thin, reinforced floor slabs to be used in the normal floor. However, an innovative system is required for stabilizing the cantilevered floor slabs. Since the motto "time is money" is alive and well in New York more than anywhere else, the construction plan had to be strictly followed by all means. As a rule, in New York, this means a floor has to be constructed within two days.

The chosen method of stabilization consists of a combination of sloping columns and a posttensioning system. The concrete columns that are anchored in an acute angle of 48° transfer the vertical load of the cantilevered floor slab onto the perimeter walls of the building. The horizontal tensile force of these sloping columns is compensated by a post-tensioning system that is built into the cantilevered floor slabs.

To absorb axial loads in the supporting columns, up to seven 35mm diameter high strength DYWIDAG THREADBAR®s were installed in the center of the cantilevered floor slab. Subsequently, they were completely post-tensioned before the construction of new floors was begun. The horizontal forces of the DYWIDAG THREADBAR®s are carried through the slab to the shearwalls in the second interior bay of the building, located about 22m away from the columns.

Both the owner and the general contractor were concerned about using the post-tensioning system because of the tight schedule. Their main concern was the additional time requirements for the instruction of the workers, the lead time and storage for the special materials and additional equipment, such as hydraulic jacks and grout pumps. However, DSI USA assured best possible support to everyone involved and supplied the DYWIDAG bars prefabricated with the required accessories and equipment delivered to the job site, exactly at the time of installation. Furthermore, employees of DSI USA were on site in order to support the workers during the installation, stressing and grouting of the THREADBAR®s.

Thanks to excellent coordination, the general contractor was able to reduce the construction time for the cantilevered floor slabs to a minimum. Consequently, the planned construction <schedule could be met without any problems to the complete satisfaction of the owner.

 for more information please call: + 49.89.309050.200 or fax: + 49.89.309050.252 or e-mail: [DSI Munich](#)