

SUMMARY OF THE PROJECT
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1. General

- 1.1 The Distribution Center Las Vegas (Medellín – Colombia) is the principal storage and distribution center of the big retail company in Colombia Almacenes Exito S.A. The project has an area of 646.000,0 ft² and was built in year 2005 (Picture 1). On December 24-07, in 4 hours, a conflagration destroyed 430.000,0 ft² of the warehouse (Picture 2). Being centralized the distribution, all activities of the retail company were severely affected and were necessary, after three months of investigations and redesigns, to begin the reconstruction work.
- 1.2 The whole building was divided in 3 blocks (Picture 1 and Fig. 1, 2). The dimensions are indicated in the figures. The height of the columns and walls was variable between 33 ft and 46 ft. For the reconstruction was necessary to consider the most severe specifications to protect the new building against fire. So it was necessary to build new fire walls, 40 ft height supported in the old and new frames using the existing deep pier foundations and much of these were unable to resist additional loads. Many of the piers become new loads that were twice the initial loads and for this reason was necessary to strengthen 61 piers (Piers excavated by hand and cast in place). The reconstruction project should be ready for September 2008, also in five months.
- 1.3 Medellín is located in an earthquake prone area, with an $A_a=0.2$ and $A_v=0.2$.

2. Design

With this challenge the design work was planned as follows:

- 2.1 Due to the new loads it was necessary to increase the bell diameter. To become this objective a caisson was built, nevertheless because the manual labor it isn't expensive, which such a diameter that allow the worker to increase the bell diameter to the required dimension (Pictures 3, 4, 5 and structural detail 1).
- 2.2 The new columns were founded in corbels that were anchored in the top of the pier (Pictures 6, 7 and 8 and structural details 2 y 3). Sometimes were necessary to use two corbels per pier (pictures 9 and 10 and structural detail 3).
- 2.3 With this design, the work was done, not only timely but two months early.

3. Pictures



Picture 1 – Distribution Center during the initial construction (Notes: 1. The middle and north warehouses were destroyed by the big fire. 2. For dimensions see figure 1)



Picture 2 – Warehouse after the fire



Picture 3



Picture 4



Picture 5



Picture 6



Picture 7



Picture 8



Picture 9



Picture 10

4. Figures

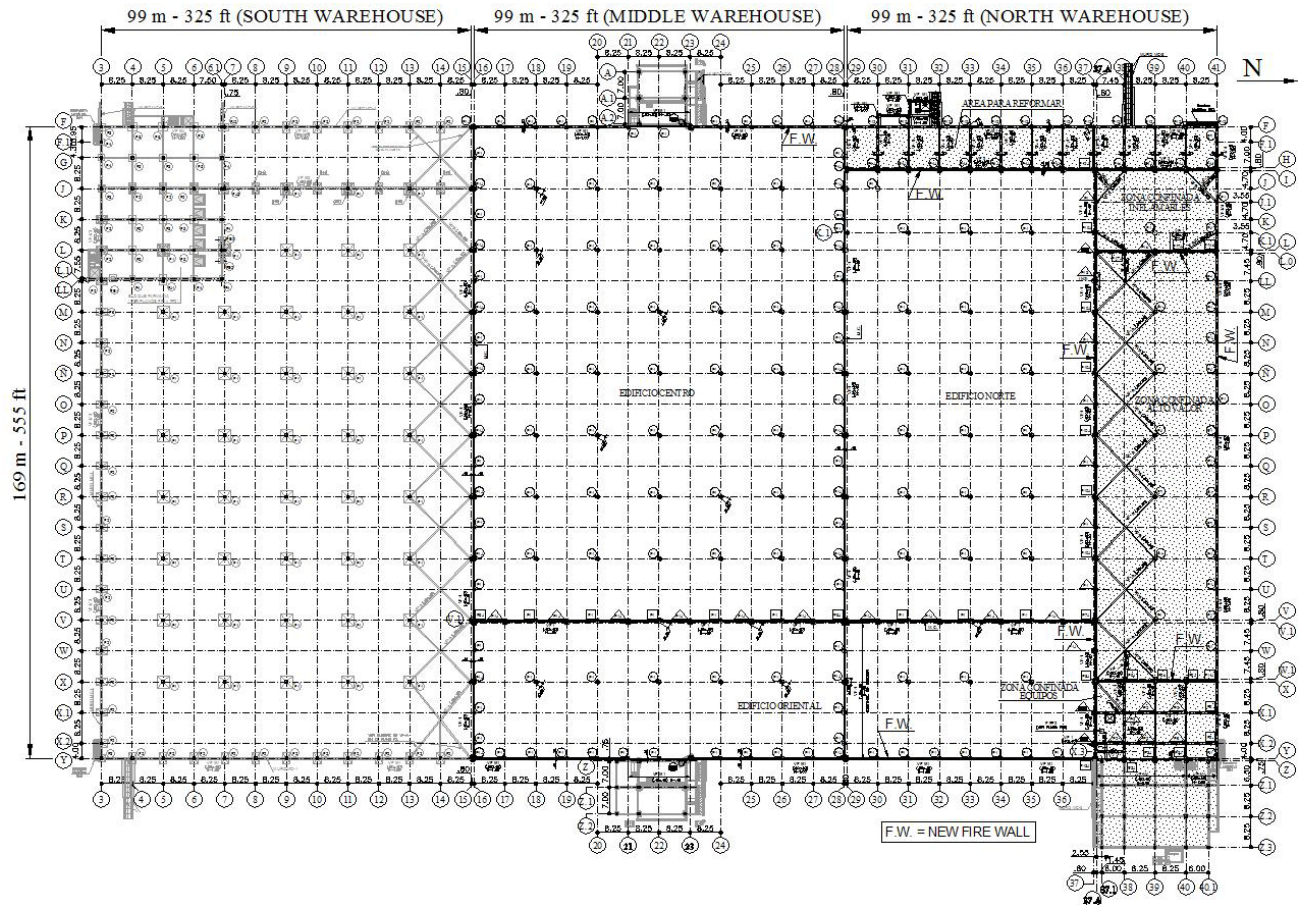


Figure 1 – General Plant

Remark: Dotted areas correspond to mezzanine slabs in level 16.40 ft

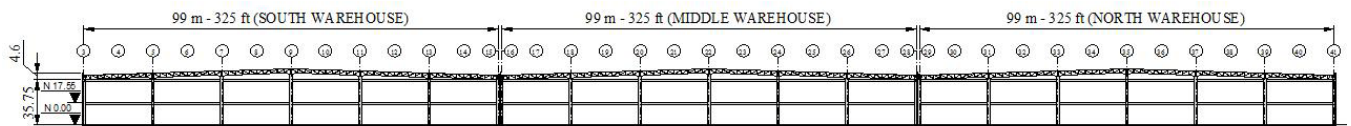
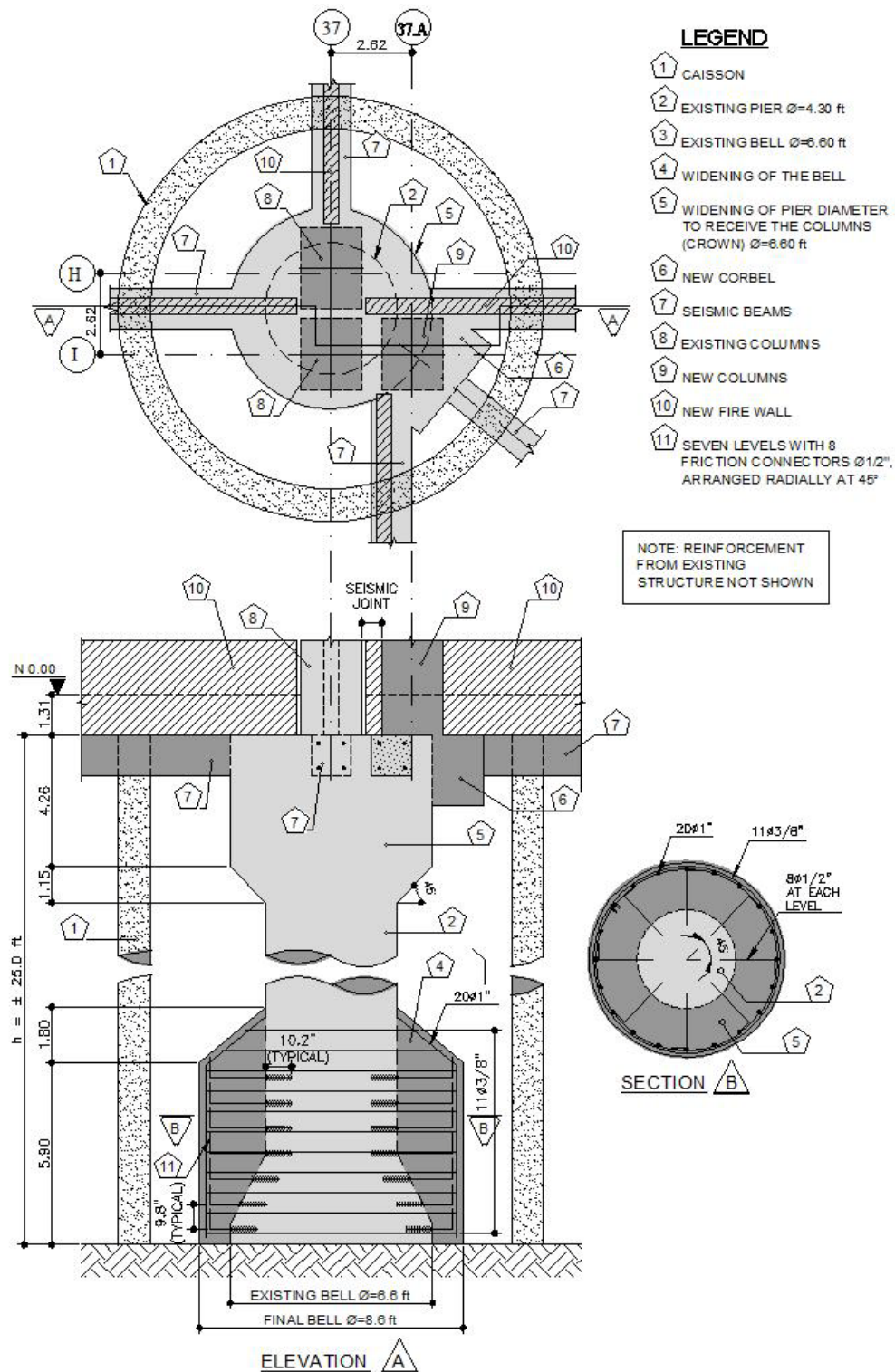


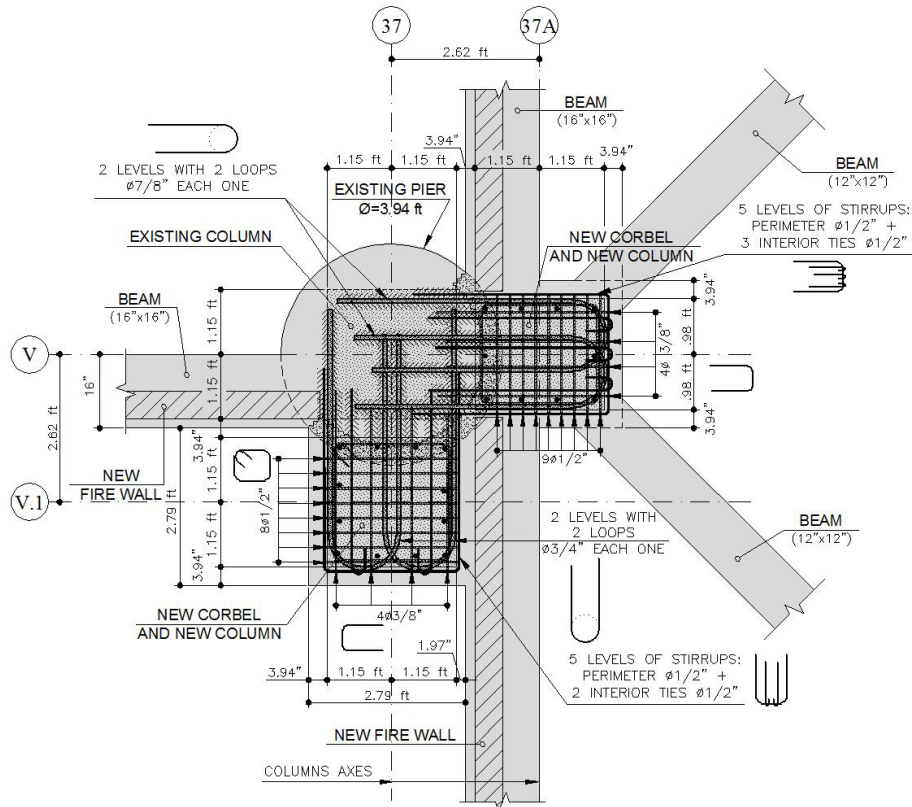
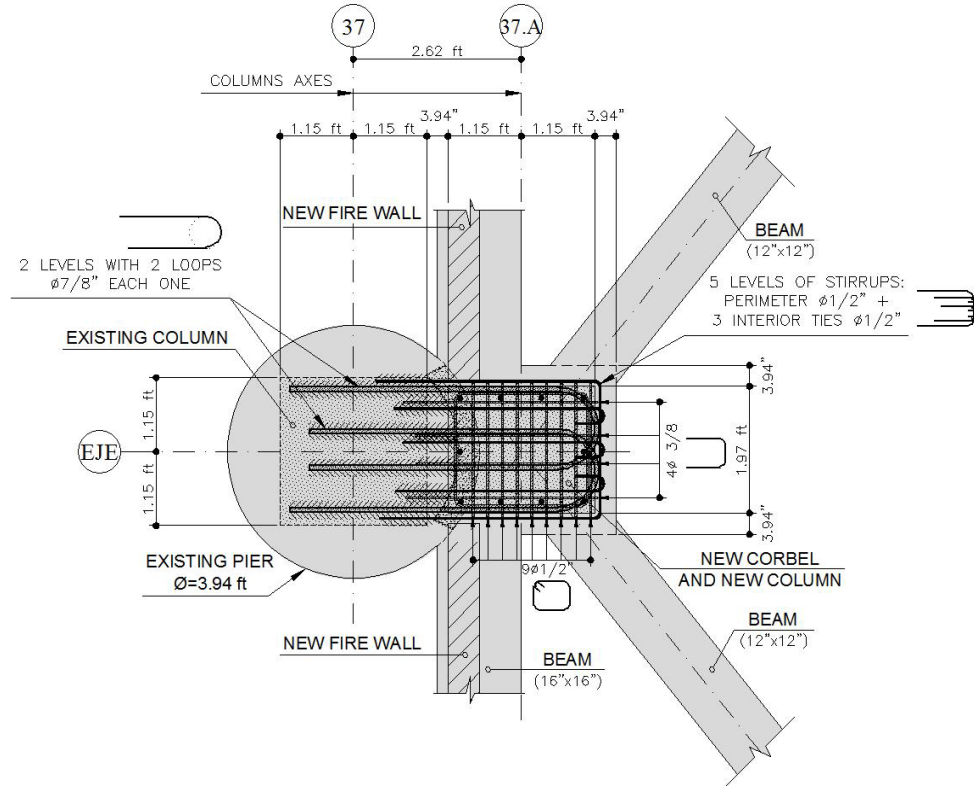
Figure 2 - Elevation

5. Structural details

The corbel design was made accordingly the recommendations from Prof. F. Leonhardt.



Detail 1 – Widening of the bell (Plant and elevation)



FOTOS REFORZAMIENTO DE PILAS REFORMA CEDI VEGAS

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