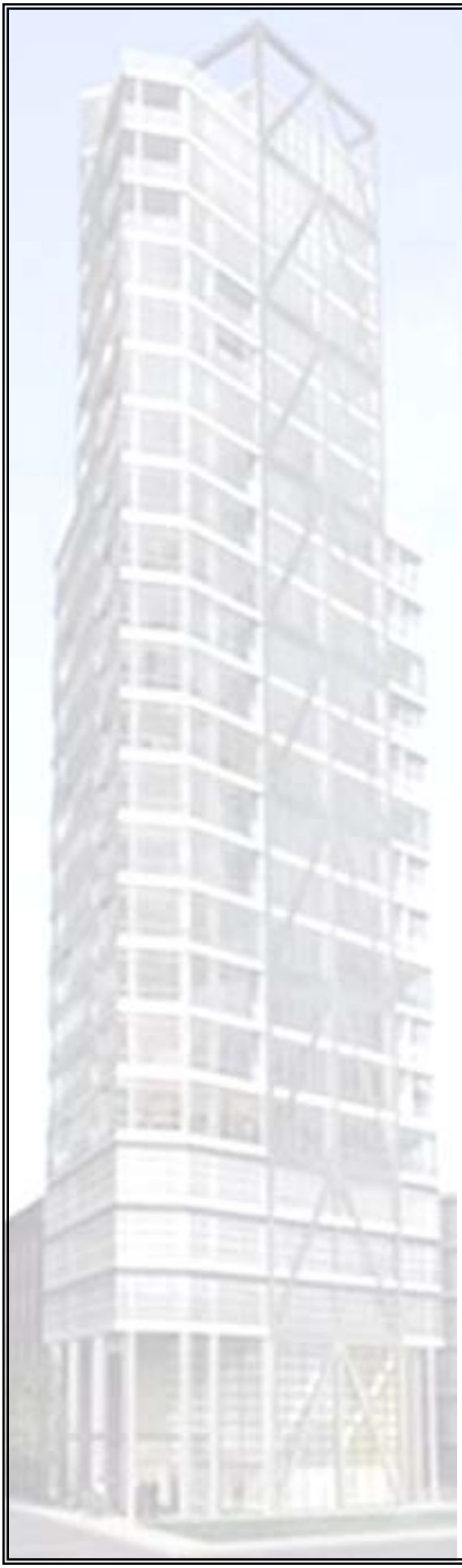

Existing Structure

Columns

There are concrete columns from the ground level to the third floor, an overall elevation of 40'. These columns are either circular with a 30" diameter or rectangular with dimensions varying from 26" to 36" on each side. The circular columns are toward the eastern end of the building where they are only framing into concrete slabs. The rectangular columns are towards the western end of the building and frame into a steel mezzanine half way between the ground and second floor. The 28 day compressive strength of the concrete is 8000 PSI.

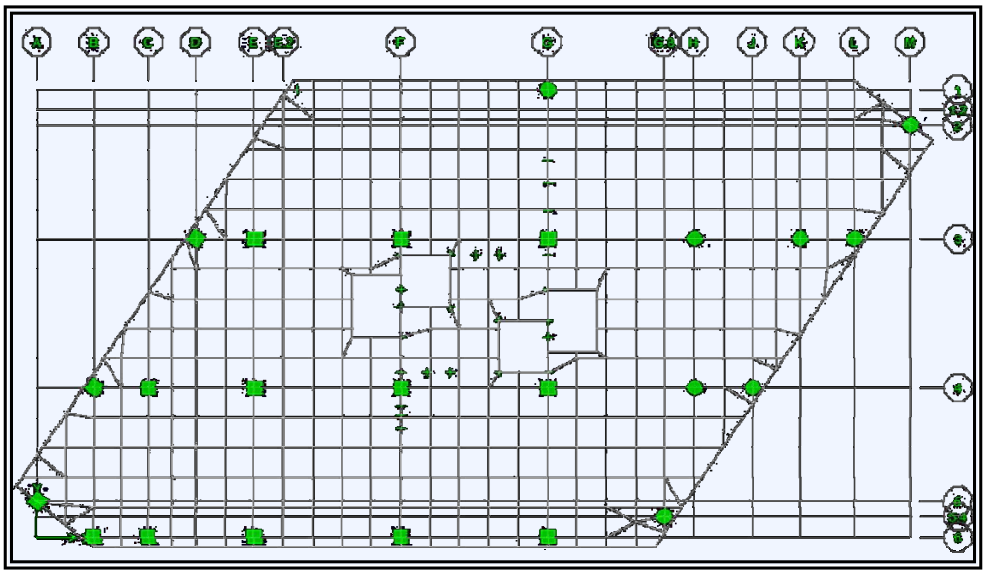

Figure 1: General column layout of first 3 floors.

At the third floor the concrete columns transition to steel W-shapes that continue the remaining 250' to the roof. The columns are ASTM A992 Grade 50 rolled W14 steel shapes. The largest columns are W14x257 and are part of the lateral system. The columns that are primarily part of the gravity system are W14x132's at the third floor down to W14x61's supporting the roof. These columns were generally erected in two story lifts, which are about 21'.

Floor System

The first through third floors incorporate a two-way, concrete, flat-slab system. The first floor is slab-on-grade and is 10" thick

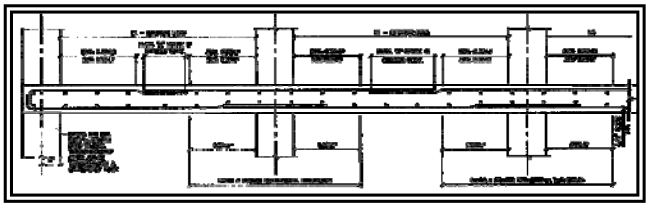

Figure 2: Detail of typical two-way flat-slab.

south of column line 4 and 12" thick north of column line 4. The second and third levels both have 12" thick slabs with 12"x24" beams running in the E-W direction along column lines 3 and 4 from column line E to H as added support around the openings for the elevators. The rebar in these slabs and beams are grade 60 deformed steel bars and those in the slab-on-grade have been epoxy coated for added protection against rusting. The concrete used in these slabs has a 28 day strength of 6000 PSI.

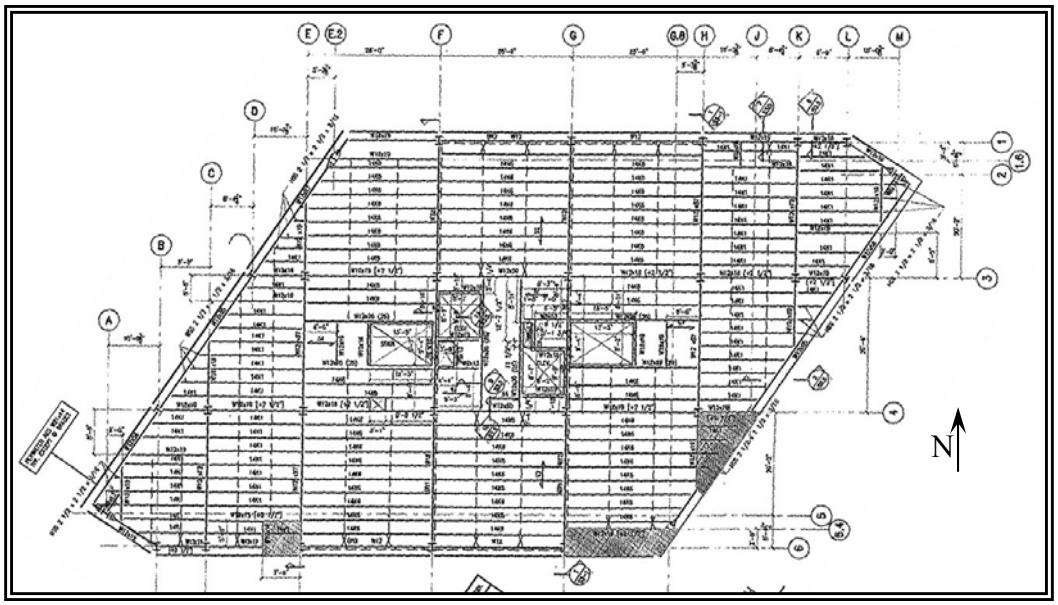

Figure 3: General floor plan of upper floors.

The mezzanine level and floors 4-6 have steel girders and beams with a partially composite slab on steel deck as their floor system. The beams are typically W18x35 and span 26'-4" in the N-S direction and the girders are W18x55 and span 26'-0" in the E-W direction. The sizes and lengths of the beams and girders begin to vary greatly east of column line H and west of column line E due to the acute angles of these corners of the building. The deck is 3" 18 gage composite steel decking. Normal weight concrete, with a 28 day compressive strength of 4000 PSI, is poured to a depth of 4 ½".

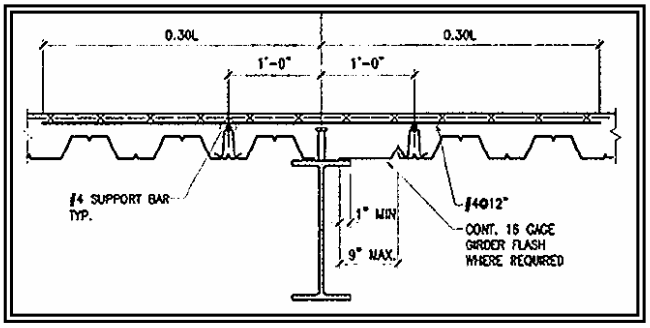

Figure 4: Detail of composite slab-on-deck system.

The seventh through 25th floors are steel joist construction where 14K6 joists, 2' O.C., span 26' between W12x87 beams that span 26'-4". These joists support a 2" concrete slab on 0.6C26 non-composite steel deck with 6x8xW1.4xW1.4 WWF. As with the lower floors this regular pattern is only applicable between column lines E and H. Outside of these column lines the trusses are reduced in size to either 14K1 or 12K1 depending on the span, and likewise the W-shape girders are reduced in size depending on the span. The roof is comprised primarily of W21x26 beams 8'-8" O.C. spanning 26' between W12x96 girders. These girders in turn span 26'-4". On top of the beams is a 3" 22 gage, hot dipped galvanized, steel deck.

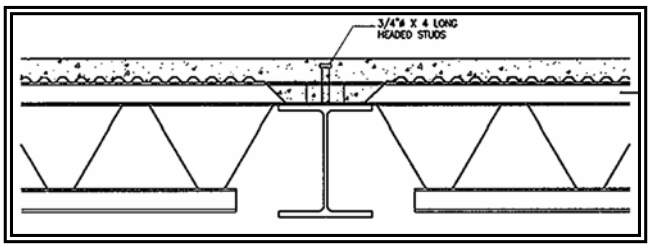

Figure 5: Detail of partially composite joist system.

Lateral System

The lateral system between the ground level and the third level is comprised of cast-in-place concrete shear walls, most with a 28 day compressive strength of 8000 PSI. There are two 27', 18" thick shear walls running in the N-S direction, and there are three running in the E-W direction with lengths of 26', 29'-4", and 52' which are also 18" thick. The 52' shear wall has pilasters that act as columns at its beginning, midpoint, and end thus these take the majority of the compressive forces and because of this concrete with an f'_c = 6000 PSI was used to save on concrete costs without compromising any noticeable shear strength. These walls resist the lateral

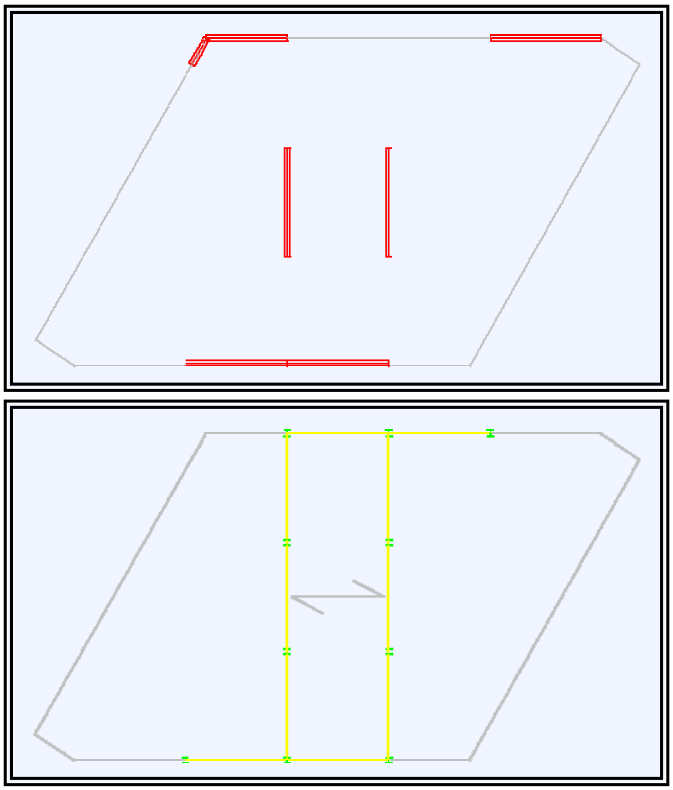

Figure 6: (Top) Lower level shear walls. (Bottom) Upper level steel braces.

loads transferred down from steel brace frames on the upper floors. The braced frames, made up of W8 and W10 shapes, distribute the shear load through large three story steel chevrons as seen in the figure to the right. The three bay brace is in the N-S direction along column lines F and G and the two bay brace is in the E-W direction between F-1 and H-1 and between E-6 and G-6. The three bay brace resists most of the lateral forces in the N-S direction and the two bay braces resist the lateral forces in the E-W direction as well as helping out with any torsion since they are on the exterior of the building and have a much larger eccentricity than the three bay braces.

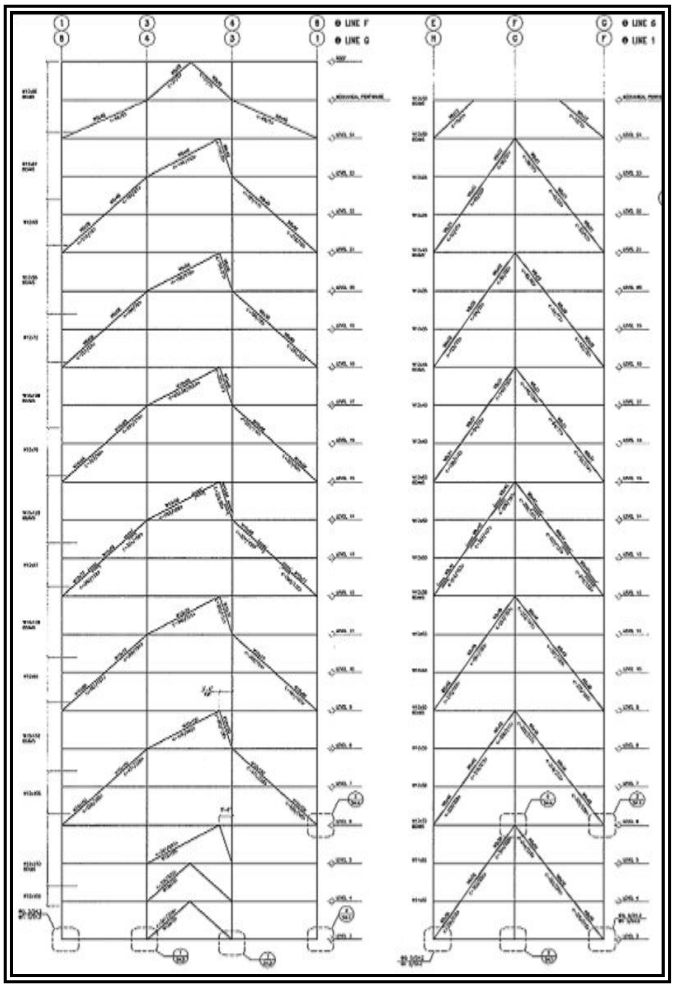

Figure 7: Braced frame layouts. (Left) N-S Braces (Right) E-W Braces