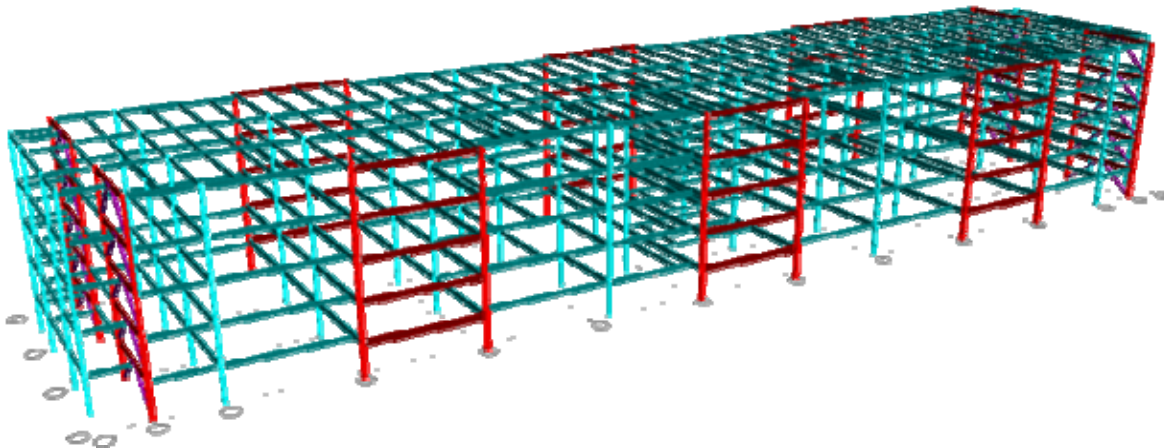


HILTON GARDEN INN

SSC Advisor: Erika Winters Downey

Date: 7.3.2007



This Package includes:

- ✓ Comments on the Provided Solution
 - ✓ Steel Quantity Takeoff
 - ✓ Design Loads and Parameters
 - ✓ Typical Floor Framing Plans
 - ✓ Gravity Columns
 - ✓ Frame Elevations
- Roof Plan
 - Typical Floor Plan
 - Layout
 - Schedule
 - Moment Frame
 - Braced Frame



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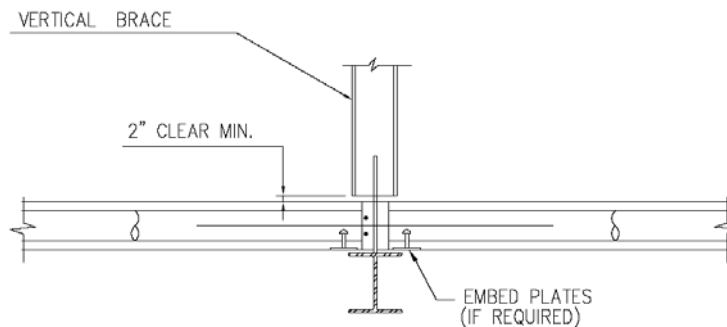
COMMENTS ON PROVIDED SOLUTION

Project: **HILTON GARDEN INN**
Location: **PITTSBURGH, PA**
Client: **GIRDER-SLAB**

Date: **6.28.2007**
SSC Advisor: **Erika Winters Downey**
Client Contact: **Girder Slab**

The information contained in this document is not intended as a basis for structural design for this or any project. Rather, it is a conceptual approach to the project that demonstrates the viability of the steel system for project requirements, budget, and schedule.

- The design criteria per IBC 2006 is summarized and included in the following pages.
- The steel quantities and geometry are provided on floor layouts, a column and frame layout plan, a column schedule, and frame elevations. The primary framing system is **girder-slab**.
- This building has 5 stories. All levels are above ground and are hotel levels - no parking.
- Material Specification
 - Wide flange shapes are A992, Gr. 50
 - Rectangular HSS sections are A500 Gr. B
- Lateral forces are resisted with braced frames in the long direction and moment frames in the short direction. *AISC Seismic Provisions do NOT apply.*
- Always consult your local building code for any variations in loading requirements.
- According to industry standards, wide-flange girders supporting plank are to be shored at third points, confirmed by the Engineer of Record, until the final grouting has cured. The shoring reduces the construction moment and accounts for the beam's unbraced top flange.
- Perimeter gravity beams are not included in the quantity takeoff as they may only be necessary for erection purposes. *One floor worth of perimeter beams represents an additional 351 ft of beams, 16 pieces, and 5.2 tons.*
- **Results for this building are 234 tons, and 696 pieces at 5.6psf for the 83,580ft² area.**
- See suggested detail below for the brace to gusset connection detail in the braced frames. It is suggested that a minimum of 2 inches of clear distance between the bottom of the brace and the



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QUANTITY TAKEOFF SHEET:

Total Structure

Project: **HILTON GARDEN INN**
 Location: **PITTSBURGH, PA**
 Client: **GIRDER-SLAB**

Date: **6.28.2007**
 SSC Advisor: **Erika Winters Downey**
 Client Contact: **Girder Slab**

Suspended Steel Floor Areas:

83,580 ft² 83,580 ft² of hotel occupancy

Steel Quantities:

Gravity Columns			
W12s	31.8 tons	0.76 psf	108 pieces
Beams (gravity)			
D-Beams	51.8 tons	1.2 psf	124 pieces
Wide Flange	70.1 tons	1.7 psf	274 pieces
Braced Frames			
Beams	29.1 tons	0.70 psf	50 pieces
Columns	34.5 tons	0.83 psf	100 pieces
Braces (HSS)	5.9 tons	0.14 psf	40 pieces
Steel not shown	5% 11.2 tons	0.27 psf	
	234 tons	5.6 psf	696 pieces

* The quantities are based on centerline dimensions

** Miscellaneous steel accounts for framing not included in the model, such as framing for openings, connection material, screen walls, base plates, and architectural elements (i.e. façade attachments, stairs, lintels, etc.)



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DESIGN PARAMETERS:

IBC 2006

Project: **HILTON GARDEN INN**
Location: **PITTSBURGH, PA**
Client: **GIRDER SLAB**

Date: **6.28.2007**
SSC Advisor: **Erika Winters Downey**
Client Contact: **Girder Slab**

Gravity Loads

<u>Live Loads</u>	<u>Uniform</u>
roof	20 psf
hotel floor	60 psf (40+20 partition)

<u>Cladding Loads</u>	<u>Uniform</u>
typical floor	350 plf
roof (gabled framing)	600 plf

Wind Load Parameters

Basic Wind Speed = 90 mph
Wind Importance Factor, I_W = 1.00
Exposure Category = B
Topographical Factor = 1.00
Drift Limit = H/450

Basic Seismic-Force-Resisting System

Steel systems not specifically detailed for Seismic Resistance

Seismic Design Parameters

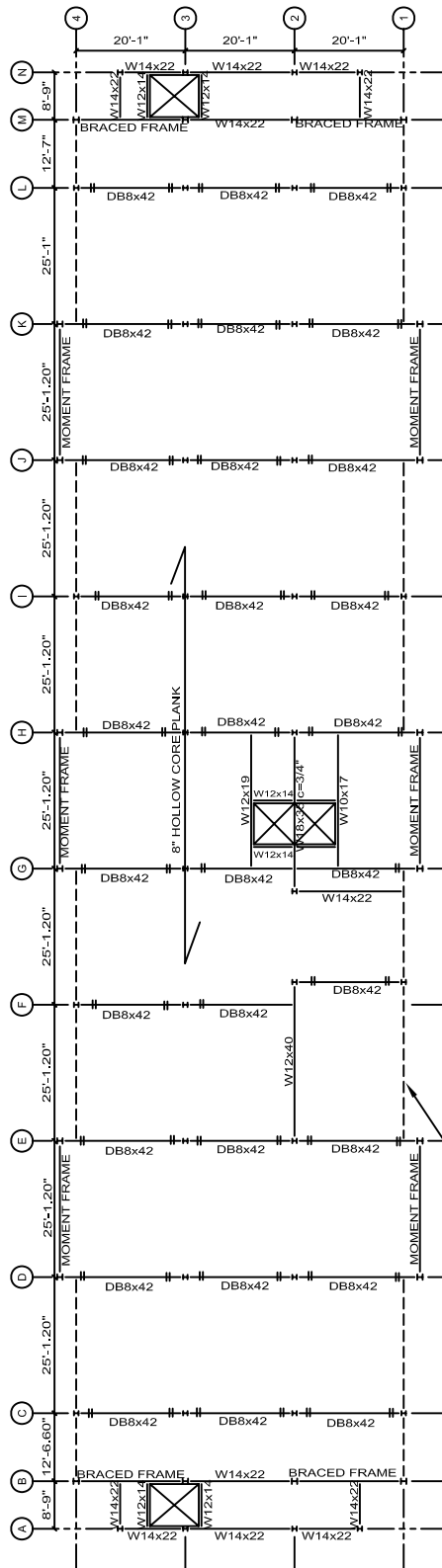
		<u>X-axis</u>	<u>Y-axis</u>	
Occupancy Category	II	Building Period Coefficient, C_T =	0.028	0.020
Seismic Importance Factor, I_E =	1.00	Response Modification Coefficient, R =	3.0	3.0
Seismic Design Category =	C	System Overstrength Factor, Ω_0 =	3.0	3.0
Site Class =	D	Deflection Amplification Factor, C_d =	3.0	3.0
Spectral Response Acceleration at Short Periods (0.2s), S_s =	0.330 g			
Spectral Response Acceleration at One Second Period, S_1 =	0.082 g			

Note: AISC Seismic Provisions are NOT REQUIRED.



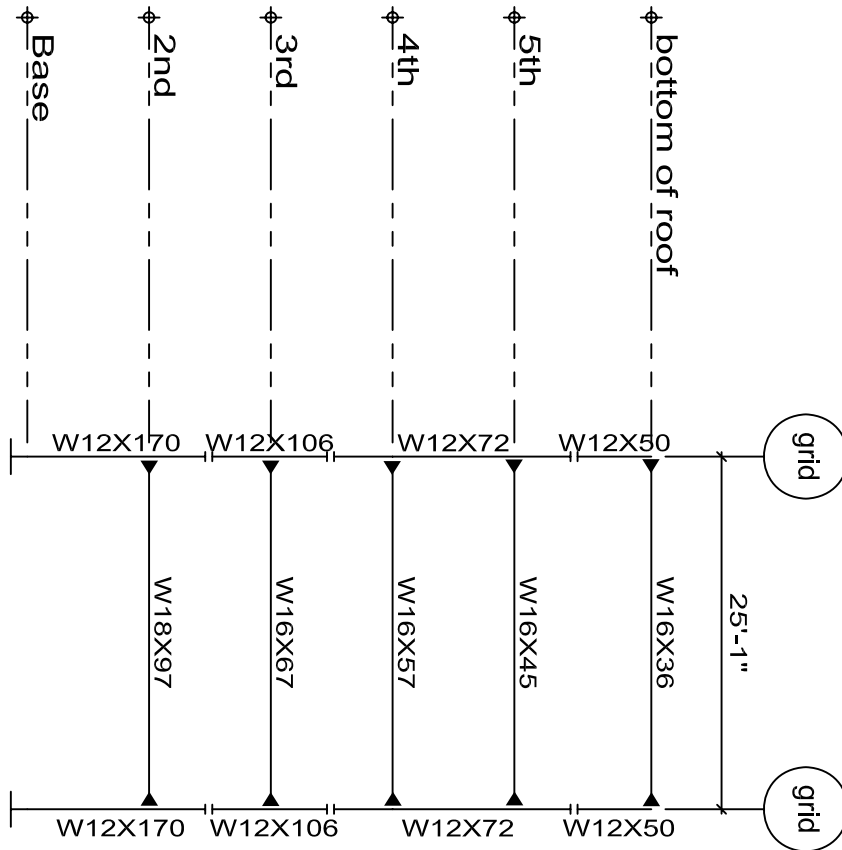
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TYPICAL FLOOR PLAN

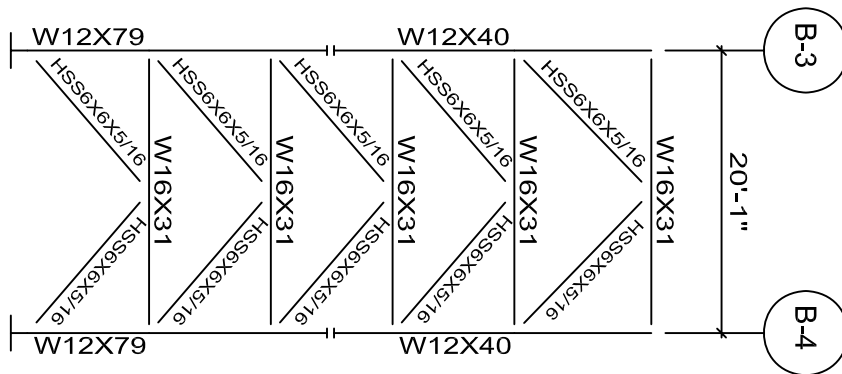


Dashed lines represent perimeter beams which may only be necessary for erection purposes. Perimeter beams are not included in the project takeoff quantities.



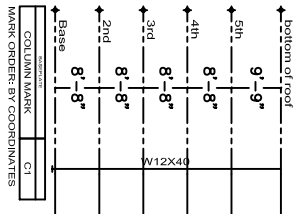


moment frames
 SCALE: 1/8" = 1'

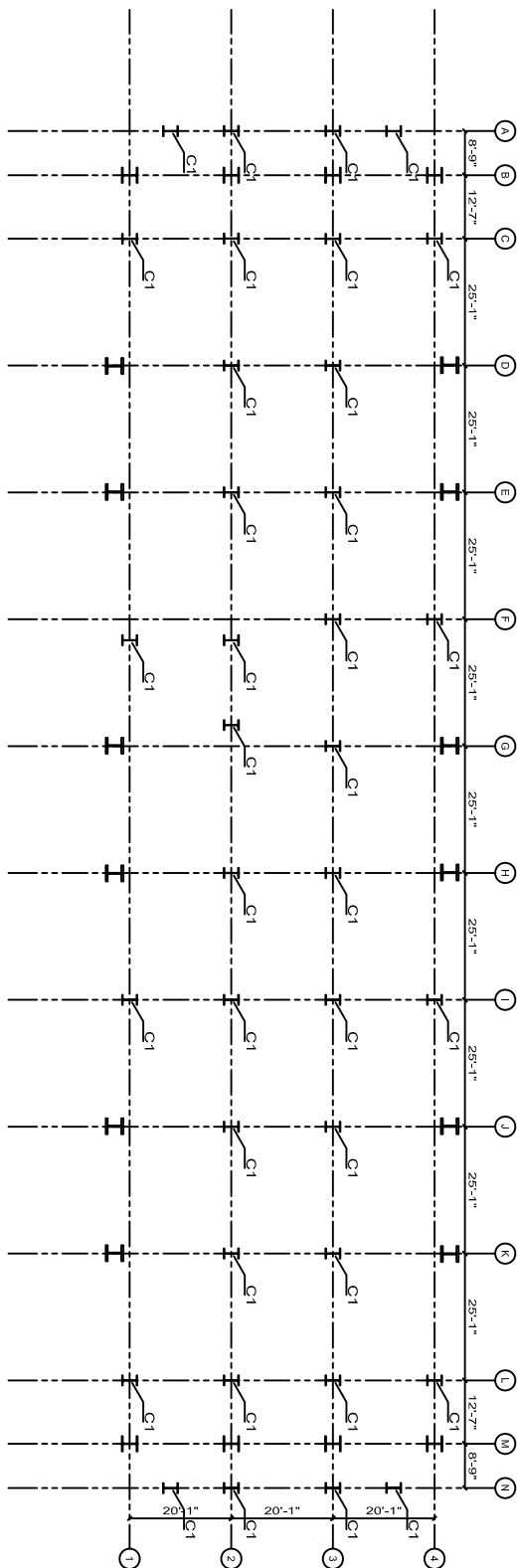


braced frames
 SCALE: 1/8" = 1'





COLUMN SCHEDULE



COLUMN LAYOUT

SCALE: 1/8" = 1'



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