References

Structural Depth

- American Institute of Steel Construction. (2006). <u>Manual of Steel Construction</u> LRFD/ASD, 13th Edition.
- American Society of Civil Engineers. (2002). <u>ASCE 7-02, Minimum Design Loads for</u> Buildings and Other Structures.
- Hanagan, L.M. (2002), "Dynamic Amplitude Prediction for Ballroom Floors." AISC Engineering Journal: 148-153.
- Murray, T. M., Allen, D. E., and Ungar, E. E. (2003), "Floor Vibrations Due to Human Activity." <u>Steel Design Guide Series 11</u>. American Institute of Steel Construction.

Steel Joist Institute. (2003). Vulcraft Steel Joists and Joist Girders.

Acoustical Breadth

- American National Standards Institute. (2002). <u>Acoustical Performance Criteria</u>, <u>Design Requirements and Guidelines for Schools</u>. Acoustical Society of America.
- Egan, D.M. Architectural Acoustics. McGraw-Hill, 1988.
- Hastings & Chivetta Architects. (2003). <u>Technical Criteria for U.S. Army</u> Fitness Facilities.
- Office of Noise Control. (1980). <u>Catalog of STC and IIC Ratings for Wall and Floor/Ceiling Assemblies.</u> Berkeley, California: Department of Health Services.

Cost and Constructability Breadth

Milligan. "The Smart Solution." (2001). AISC - Modern Steel Construction.

Singer. "State of the Art." (2005). AISC - Modern Steel Construction.

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RS Means Building Construction Cost Data 2007

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Calculation Appendix

Detailed calculations or design data of or relating to the following are available upon request:

- Lateral Load Determination
- Relative Stiffness and Torsion Calculations
- RAM Advanse Input
- RAM Structural System Models
- Vibration calculations
 - o Rhythmic criteria per AISC Design Guide 11
- Castellated Beam design
 - o Per CMC Steel design aides
- Detailed Building Cost Estimates
 - o Material
 - o Delivery
 - o Labor/Erection
 - o Equipment