**Article Title**

Data for: A Design-focused, Cost-ranked, Steel-frame Sizing Optimization

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**Abstract**

The dataset provides the results of several executions of a new optimization method on four example frame problems. The dataset also includes the results of other optimization methods inferred or transcribed from referenced papers for comparison.

**Keywords**

Steel frame; structural design optimization; metaheuristics; strain energy density; virtual work

**Specifications Table** [Every section of this table is mandatory. Please enter information in the right-hand column]

|  |  |
| --- | --- |
| **Subject** | Civil and Structural Engineering |
| **Specific subject area** | Structural optimization of steel frame section sizes. |
| **Type of data** | Table |
| **How data were acquired** | Simulations from matlab optimization models |
| **Data format** | Processed |
| **Parameters for data collection** | 20 simulations min. were performed of each frame example with the new optimization method, reporting min, mean, and std dev (assumed normal to match examples from literature) |
| **Description of data collection** |  |
| **Data source location** | Institution: Stanford University  City/Town/Region: Stanford, CA  Country: USA |
| **Data accessibility** | With the article |
| **Related research article** | Steve Barg, Forest Flager, Martin Fischer  A Design-focused, Cost-ranked, Steel-frame Sizing Optimization  JOBE |

**Value of the Data**

* This data records the data used to report the results, with a description of all assumptions.
* This data can be used to evaluate

**Data**

The data includes the best, mean, and standard deviation from several executions of the optimization methods. Comments are provided within the csv file for auxiliary information.

The best designs for each frame are also included in the file in addition to the main paper.

**Experimental Design, Materials, and Methods**

The optimization method was executed 20 times on each frame example to determine the best, mean, and standard deviation of the method. The standard deviation was calculated assuming a normal distribution to be comparable to the previous papers referenced, which wasn’t necessarily the case for our results.

**Acknowledgments**

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**References**

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