

# Results from Element Matching

**Project name:** Bod nidarosdomen

**Construction site located at:** 59.1159, 6.0029

## Summary of results

Total score	Score without reuse	Savings	Substitutions
38501.16 kr	38501.16 kr	0.0%	0.0%

The 'Greedy Algorithm Plural' algorithm yields the best results, substituting 0/38 demand elements (0.0%). Using 'Price' as the optimization metric, a total score of 38501.16 kr is achieved. For comparison, a score of 38501.16 kr would have been obtained by employing exclusively new materials. This results in a total saving of 0.0%. Note that impacts of transporting the materials to the construction site is accounted for and contributes to 96.57% of the total score. Open the CSV-file "Bod\_nidarosdomen\_substitutions.csv" to examine the substitutions.

## Constants used in calculations

Constant	Value	Unit
Density timber	491.0	kg/m <sup>3</sup>
Density steel	7850	kg/m <sup>3</sup>
Price new timber	435.0	kr/m <sup>3</sup>
Price reused timber	100.0	kr/m <sup>3</sup>
Price new steel	200.0	kr/m <sup>3</sup>
Price reused steel	200.0	kr/m <sup>3</sup>
Price of transportation	3.78	kr/km/tonne

## Information about datasets

Elements	Filename	Number of elements
Reused	SUPPLY_DATAFRAME_SVERRE.xlsx	109
Demand	DEMAND_DATAFRAME_SVERRE.xlsx	38

## Impact of transportation

Transportation score	Percentage of total score	Transportation all new
37179.81 kr	96.57%	37179.81 kr

All calculations in this report take impacts of transportation of the materials to the construction site into consideration. Transportation itself is responsible for 37179.81 kr. This accounts for 96.57% of the total score of 38501.16 kr. For comparison, the transportation impact for exclusively using new materials would have been 37179.81 kr.

## Performance of algorithms

Name	Total score	Substitutions	Time
Greedy Algorithm Plural	38501.16 kr	0.0%	0.047s

The design tool is runned with 1 algorithms, namely: Greedy Algorithm Plural. The Greedy Algorithm Plural yields the lowest score, as shown in the table. The substitutions by this algorithm are completed in 0.047 seconds.