

# C412 Environmental Innovation

Considerate Constructors Scheme

## Efficient Plant Database

A new plant/machinery database has been developed at C412, which lists various items of energy efficient plant and eco-models. This has been compiled from plant/equipment supplier/manufacturers catalogues. The tool enables the user to filter specific categories of plant that they require for the work activities and compare with potentially less efficient plant. The database acts as a guide to facilitate sustainable procurement with minimal time taken up by searching several catalogues of equipment. The tool includes several benefits such as the energy and other environmental savings made as a result of selecting certain equipment. It also includes additional benefits of the equipment such as health and safety benefits and direct cost savings associated with making greener purchasing decisions.

There are currently no such databases detailed on the Considerate Constructors Best Practice Hub, although other best practice items for energy-saving plant/equipment can be incorporated into this database. Individual items have been procured based on lifecycle savings, such as Wernick Hire products, Jackpad systems, solar-products or water management systems such as Sensaf flush, but no such tool for making these decisions has been described. An Environmental Scorecard has also been detailed on the Best Practice Hub, with reference to design specifications rather than the impacts associated with direct construction works. The efficient plant database therefore poses an opportunity to integrate a wide variety of sustainable or 'greener' products into a simple tool for decision making at the early stages of procurement, this database can be used across all construction projects in the UK regardless of their size and procurement power. It can also be updated as regularly as necessary with evolving equipment on the market and demonstrate to clients efforts to save the project money; time and resource in addition to environmental and other benefits.

**Table 1: Snapshot of database**

Plant type	Supplier	Make and model	Size	Power equivalent	Engine spec. equivalent	DPF	Fuel/emission savings
Excavator	GAP	Kubota KX080-4 excavator	8T			Yes	ECO PLUS function can deliver up to 18% fuel savings. Power setting for tough digging applications will provide a further 5% improvement in productivity while consuming 12% less fuel compared to the previous model.
Towerlight	GAP	VB9 Towerlight	9m	20 Lux, coverage 3600m <sup>2</sup>	400w metal halide lamps		340 hours usage on a single tank of fuel (170L). Reduction of 8 CO2 emissions per month.
Dumper	GAP	TA6 and TA9 models	6T and 9T	55kW	JCB EcoMAX engine	No	8% reduction in fuel consumption
MEWP	GAP	Pecolift					The Pecolift operates without battery or electric power. The Pecolift is elevated by simply rotating the handle which allows you to choose working height within seconds.

An example of the benefits that the tool can bring can be demonstrated in the below case study of an Eco-Crane which was chosen above a standard crane on the C412 Bond St. project.

### Case Study 1: Eco-Crane

The 100t Hitachi "Eco-Friendly" Lattice Boom crane was procured for the Eastern Ticket Hall, which resulted in an overall saving of over £26,000 and 4500 kgCO<sub>2</sub>e over its 59 week hire period on site 24/7 (for further info. please see the attached 'Eco-crane' study).

	Standard 100t Crane	New Crane
Weekly Rental Cost (£)	1,900	1,750
Hourly Diesel Consumption (L)*	9.20	5.80
Weekly Diesel Consumption (L)*	772.80	487.20
Weekly Fuel Cost (£)*	618.28	389.76
Weekly Overall Spend	2,518.24	2,129.76
Total Spend*	148,576.16	126,245.84
KgCO <sub>2</sub> e Emissions Weekly*	2068.12	1303.81
Cost of DPF	3,000	-
KgCO <sub>2</sub> e Emissions Savings Weekly*	-	764.31
Overall KgCO <sub>2</sub> e Emissions Savings*	-	4509.29

Overall Saving	Overall Saving (Inc. Intangible benefits saving)	Overall Weekly Saving	Overall Weekly Saving (Inc. Intangible benefits saving)
£25,330	£26,982	£429	£457

An EU emission compliant Doosan compressor was also sourced, manufactured to stage 4 emission category and fully compliant for use in central London. Compressors are generally difficult to procure with compliant engines to meet the emissions regulations and therefore the database assists companies to ensure compliance.

