A dynamic CAD program facilitates the creation of car parks to national or user-defined standards, and enables the designer to take in elements such as columns and no-parking zones and then select the optimum layout.

Design parameters

The parametrisation of the project involves several steps. The first is to choose the applicable national parking standard. The program is preloaded with a comprehensive library of standards for many countries, from the UK, Germany, the Netherlands and France. If the user finds a parking standard missing, it is also possible to create a customised or user-defined standard, using a design wizard.

The design parameters for mid-islands can be predefined as well, without the need to redefine the island’s geometry, spacing or type of surface treatment for each individual row. Similarly, dimensioning user-defined bays, wheel stop and bay numbers can be embedded within the design parameters.

For quick-cost estimates, ParkCAD can assign costs for parking objects, including lengths, surface, aisles and islands. The software can then automatically generate costing and quantity reports based on these figures. These reports can be saved and imported to spreadsheets for further processing.

In urban areas, it is usually necessary to reserve places for disabled drivers, service and taxis; and including bay numbers and wheel stops. When ParkCAD was first developed it was initially intended for car park projects but sometimes unforeseen uses – that the programmers never dreamt of – are discovered by users. An example is the design of marinas for the car parks, and for the car park areas that vehicles can drive across, such as aisles and driveways. Rows of parking bays are created inside the car park boundary up to lines on the access boundary instead. The maximum number of bays can also be found automatically by indicating the increments of parking。“

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For example, with the options shown in the figure on the previous page (5° angular increment, and position rows each 0.5m), the optimisation of the car park results in ParkCAD calculating 1,224 different positions in just 153 seconds. The calculated results are displayed in table form, enabling the designer to select the preferred layout. A desirable improvement of ParkCAD would be the automatic inclusion of structural elements such as beam or column frames, as in the case in underground or above-ground parking. For now this issue can be solved by post-editing the rows, using editing tools that enable, for example, adjustment of the row length or width, without changing the general pattern.

Horing created a car park in a designated area, the designer is able to designate areas where parking should not be placed. Typical uses for such exclusion zones would be for objects such as access ramps and return shopping carts.

Customisation and marinas

The car park can be completed by adding and editing various elements, such as reserved places for disabled drivers, deliveries and taxis, and including bay numbers and wheel stops.

When ParkCAD was first developed it was initially intended for car park projects but sometimes unforeseen uses – that the programmers never dreamt of – are discovered by users and the navigable farwars are similar to dimensioning bays and aisles in a car park. Marine designers are also able to adjust the parameters for mid-islands or the widths of the centre paths to account for the contours, so obtaining the desired result.