Wall-bounded turbulent flows that interact with an isolated object or a cluster of objects are of practical importance in several engineering and environmental applications. Examples of such flows include atmospheric boundary layers over a forest patch, arrays of wind and tidal turbines, groups of outstanding buildings in cities, river flows over patchy vegetated beds and marine currents impinging on offshore structures. For these flows, the estimation of drag force and the knowledge of the structure of the turbulent wake occurring behind the obstacles are extremely important for, e.g., predicting the amount of power that a group of turbines (wind or marine) can generate, estimating carbon dioxide exchange between the forests and the atmosphere or modelling flood routing in rivers with a patchy vegetation cover. In this talk, I will examine two different types of wall-bounded turbulent wakes. 1) A turbulent flow past a wall-mounted cube: Here, the aim is to isolate the effects of incoming turbulence levels (measured at the height of the cube) on the near-wake development (figure 1a) as well as the vortex shedding behaviour, and, 2) Turbulent flow past a cluster of cylinders where we will examine the effect of packing density on the drag and the wake generated by a group of objects (figure 1b). The goal in both these studies is to understand the interaction between different turbulent flows and develop scaling laws for the drag and near-field wake characteristics.