The article presents the development of Spatial Query Language for 3D building and 3D city models. Inspired by the achievements of the GIS community in developing spatial query functionality for 2D space, the author adopted these concepts and applied them on geometric objects in 3D space. The developed query language provides metric (closer Than, farther Than, etc.), directional (above, below, northOf, etc.) and topological operators (touch, within, contain, etc.) for use in SQL statements. The operators have been implemented by algorithms which are based on the hierarchical space-partitioning data structure octree. The octree allows for the application of recursive algorithms that successively increase the discrete resolution of the spatial objects employed and thereby enables the user to trade off between computational effort and the required accuracy. Additionally, a fuzzy handling of spatial relationships becomes possible. The article describes the available spatial operators and the algorithms developed to implement them.