Plumbing And Electrical Needs

Dental equipment calls for some unique electrical and plumbing requirements. Some are obvious, like sinks in the treatment room for the dentist, hygienists, and assistants to wash their hands. But other, unseen systems operate all day in the dental office. The most complex are centered in the treatment room.

The heart of the delivery system is the utility junction box ("J-box"). J-boxes contain connection points for compressed air, electricity, fresh water, dental vacuum systems, and drain piping. If the delivery is OTP, the J-box is in the base of the chair. In the case of rear or side delivery, the J-boxes are located inside the cabinets or attached to the wall. Let's take a look at each of the utilities in detail.

**Compressed Air**
Compressed air is used throughout the office to propel handpieces, dry teeth, clean out hand-held instruments before sterilization, and to do lab work. The compressor is most often located in the dental mechanical room. Supply lines are typically fabricated of 1/2" copper pipe.

**Electricity**
Electricity powers the chair itself and chair-mounted accessories like the dental light and fiber optic lights on the handpieces.

Elsewhere in the treatment room, electricity is needed for X-ray equipment, X-ray view boxes, cabinetry, and smaller instruments and accessories. If the dentist has chairside computers, a dedicated electrical circuit with surge suppression is usually installed. Wall-mounted or ceiling-mounted monitors are becoming popular additions to treatment rooms, either for patient education or entertainment.
**Fresh Water**
During treatment, the dentist, hygienist, or assistant periodically flushes the patient's oral cavity with fresh water. Water also flows through the handpiece to cool the instrument and teeth during cutting operations. If the chair has a cuspidor, fresh water constantly circulates in the basin.

In many instances it is preferable for the dentist to use a self-contained water system. The handpieces draw their water supply from a plastic bottle mounted to the chair or the dental unit. Self-contained systems are a good choice in offices where the building water supply is unreliable or of substandard quality. They also offer an easy way to control the development of bio-film in the water lines.

**Dental Vacuum**
A dental vacuum system ("suction") collects waste gases, liquids, solids, and debris from the mouth. The central vacuum pump, found in the mechanical room, draws the waste material into a main trunk line of 1"-2" diameter. Once the waste reaches the treatment room, liquids drain into the sanitary sewer system and gases are exhausted to the outside of the building.

**Drain**
If a cuspidor is used, a drain line must be provided for wastewater. Drain wastewater flows into the main sewer line.