

# Digital indirect bonding

James Bonham describes how CAD technology delivers precision bracket placement

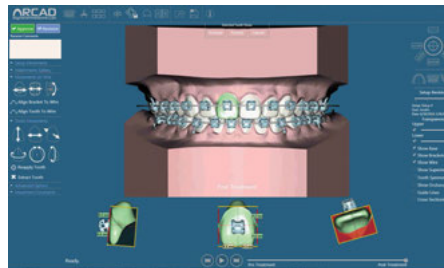
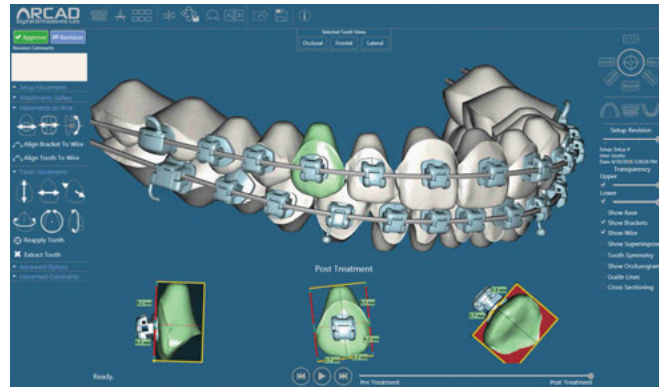
Computer-aided design (CAD) software enables engineers and architects to design, inspect, and manage engineering projects within an integrated graphical user interface (GUI). Computers are proven to enhance the precision and efficiency of creation, modification, and analysis of any design. Dental professionals currently use CAD technology every day to design appliances like implant surgical guides, crowns and bridges, and tooth aligners to name a few. More recently, CAD technology is assisting orthodontists with treatment planning and precision bracket placement.

3DiB (three-dimensional indirect bonding) is the latest bracket-placement CAD technology from ARCAD Digital Lab (the software developer) and Specialty Appliances orthodontic laboratory. 3DiB has many unique features, including an online communication portal, a web-based approver software, and an extensive bracket file library. The advanced CAD software simulates the patient's ideal posttreatment finish derived from the doctor's treatment plan, and then identifies the exact bracket location for efficient straight-wire tooth alignment. Orthodontists have the flexibility to quickly view, edit, and approve their cases from almost any Windows®-based computer. Instead of forcing clinicians to use an unfamiliar appliance, 3DiB allows them to select their preferred bracket system for each individual orthodontic case.

Every orthodontic bracket has a unique prescription of torque, tip, and angulation built into the bracket. 3DiB software understands how the bracket's prescription is expressed when attached to the tooth and engaged with the doctor's finishing archwire. Using this knowledge, the software finds the best bracket location on each tooth's unique anatomical surface that will perfectly align the archwire slots and achieve the doctor's ideal treatment finish.



James Bonham is a partner at Specialty Appliances and manages sales and marketing. He has spent the past 12 years in orthodontics with a strong focus on the integration of digital technology into orthodontic practices.



Once the ideal setup is completed and checked for quality by experienced technicians, the orthodontist is notified through 3DiB's secure communication portal. Clinicians can log into their portal and have full control to adjust either teeth in the ideal setup, or bracket location on the pretreatment malocclusion model. If they decide to adjust the posttreatment setup, brackets automatically adjust to their new location on the pretreatment malocclusion. To the contrary, doctors can also choose to move brackets on the pretreatment malocclusion and instantly witness the adjusted tooth position on the posttreatment setup. This easy approval process usually takes 5 minutes or less of the doctors' valuable time. When doctors are happy with their case setup, they simply click on the approve button, and the case gets forwarded to Specialty Appliances for indirect tray fabrication.

Specialty Appliances then reviews the doctor-approved setup and prints the malocclusion model. Using a proprietary system to capture the doctors' ideal bracket position, the lab places the brackets on a printed malocclusion model. Specialty then manufactures an indirect transfer tray with custom adhesive bases on each bracket pad. This process ensures a perfect custom fit of each bracket to the tooth's enamel surface. 3DiB's indirect transfer trays will efficiently deliver



the doctors' approved ideal placement of their brackets.

Transfer trays can be sectioned or delivered in whole to each arch by a single orthodontic chairside assistant. Specialty Appliances recommends a chairside delivery system using a light-cured flowable composite. This reliable delivery system has proven results of excellent bond strength and minimal to no adhesive flash. Indirect bonding training materials and on-site training are available through Specialty Appliances' upon request.

Excellent bracket placement has always been a sure way to move teeth efficiently, decreasing orthodontic treatment time. 3DiB is a fine use of CAD technology to help orthodontists achieve greater precision in bracket placement. **OP**