WILDERNESS TRAIL BIKES
PowerBeam™ Rim

The PowerBeam Rim is a revolutionary patent pending rim design that is exceptionally light, strong and stiff. The PowerBeam Rim features a centrally located vertical beam that uniformly distributes spoke load for maximum strength, impact resistance and longer wear. Made of premium 6061-T6 aluminum alloy, the PowerBeam is currently offered in 21mm, with a net weight of approximately 398 grams and is available with 28, 32 or 36 hole drilling.

WTB and UKAI Rim Company of Japan have pioneered new manufacturing methods to create the technically challenging WTB PowerBeam Rim. This partnership has produced a new standard in rim design and performance that enthusiasts will appreciate. Most conventional rims have an unsupported inner web (spanning from side to side). The centrally located vertical beam of the PowerBeam braces the inner web at the center of its span, reducing rim flex caused by tire and brake pad pressure, consequently allowing the rim to withstand higher tire pressures as well as helping eliminate brake squeal. The centrally located vertical beam also directly supports the spoke load, eliminating the need for eyelets. This design feature results in a net weight reduction of approximately 1 ounce. The material weight usually devoted to strengthen eyelets is used to reinforce the side walls of the PowerBeam for better impact resistance and longer wear.

In designing the PowerBeam Rim, many basic facts were considered. First, a rim's braking surface wears down in thickness as the wheel is used. As well, the brake pad's "foot print" on the rim's braking surface migrates as the pads wear. This can be really pronounced in wet/muddy conditions. Furthermore, rim impact (where the tire completely compresses, putting lots of pressure on the rim) is very common when riding in dirt. Rims with thin braking surfaces get bent easily when impacted. When there is a dent or bump in your braking surface it causes very uneven, grabby brakes, which is obviously undesirable.

Today's rim market is full of very light mountain bike rims. Most designers are fixated on making rims with weights around or even below the 400 gram mark. To do this they have had to reduce the wall thickness and height of the braking surface, both undesirable in consideration of the basic facts described above. The wall thickness of some manufacturers rims is so thin (.039") that consumers receive a "worn out" rim when "new." Furthermore, the reduced height of the braking surface (sometimes as small as 9mm) is often only slightly taller than a brake pad. On rims with such small braking surfaces, as the pad wears, they soon migrate off the braking surface which can cause a serious accident when the brake pad dives into the spokes, locking the wheel from turning. (This is the case with cantilever brakes. With U-brakes and Cam brakes, the pad migrates the other way as it wears going into the tire, potentially causing a blow out.) Another thing that is in vogue with rim designers is to make the sides of the rims angled either in or out. There are various rationale for this but we think they are bogus. The sides should be parallel because if the rim gets knocked out of round, even a little bit, the non-parallel sides will cause uneven braking as the distance between pads changes as the rim rotates.

The WTB PowerBeam Rim was designed to avoid all these problems, to be very strong and yet still be light weight. In other words they are designed by people who have been riding bikes for a long time and have a good perspective on what features are really important to riders. The PowerBeam features a perfectly parallel 12mm tall braking surface, the tallest in the industry. The parallel braking surface ensures even, responsive braking, even when a wheel is out of true (and they almost always are). The parallel braking surface also reduces the accumulation of grit and moisture that cause rapid brake pad wear and hastens the need for brake adjustment. The 12mm height of the braking surface enables safer, smoother brake performance as brake pads wear and facilitates irregular braking when vertical runout occurs. The generous braking surface thickness of .046 to .051 is tapered so it is thickest where wear is the greatest. The tall height and relatively thick braking surface is amazing considering the super light weight of this rim.