

*MUNICH* - Light emitting diodes (LEDs) from a leading European LED manufacturer are now being used for the first time to provide room lighting. The force behind this pioneering work is the famous Bartenbach Lighting Laboratory. The LED installation is the high point of an exhibition at the Innsbruck Architecture Forum to celebrate Christian Bartenbach's 70th birthday. The exhibition is due to run until June 8. Around 14,000 white and colored LEDs are integrated in the ceiling. A computer program was used to calculate the mixture of colors that would produce white light. Specially developed mini reflectors distribute the light throughout the room without causing any glare. According to Bartenbach, "This is a vision of the future and we expect it to be reality in the next five years". This installation can achieve a luminance of 600 to 700 lux, which is perfectly adequate for normal office lighting. It was decided not to use white LEDs exclusively as these produce a very cold light that is not generally suitable for indoor lighting. Mixing white, blue, blue-green, green, orange and red LEDs produced a colour temperature of between 2500 and 3000 K, which is more or less the same as that of an ordinary light bulb. In principle, this method can be used to produce any color temperature. Color rendering is very good (Class 1B), comparable to that of high-quality fluorescent lamps. As far as brightness is concerned, the color LEDs achieves a luminous flux of around 2 lumen and the white LEDs around 1 lumen from a power consumption of just 0.1 W. By comparison, a 15W light bulb produces 90 lumen. Intensive research is being carried out to improve the performance of LEDs. The advantages of light-emitting diodes over many other light sources include extremely long operating life from 50,000 up to 100,000 hours and very high impact resistance. LEDs can now be found in a wide range of application, from dashboard backlighting to large-format video panels. Once engineers succeeded in generating blue and even white light a whole range of new market opportunities opened up for LEDs including traffic control systems, street lighting, safety lighting, route marking, emergency lighting and now, as Bartenbach have demonstrated, indoor lighting.