



Clockwise from top **Strong colours in the recycled fishnet carpet by Interface and art by the project's interior designer Kimberly Offord plays off raw concrete and natural wood in the light-filled, double height great room. Spatially distant desks for Tree Construction's office are IKEA Skarsta stand/sit bases with custom wood tops. The Lignatur CLT spruce ceilings are perforated for sound attenuation. Lighting fixtures are from KUZCO Lighting. Pine planks are applied to the law office's CLT interior walls while IKEA provides the office furnishings.**

ver. With Stark and principal David Arnott, she selected a firm focused squarely on green design. Thus, Tantrum is North America's only Passivhaus commercial building certified by the German-based Passivhaus Institute.

To achieve this designation, a building must use 90 per cent less energy for heating and cooling than standard buildings. A key requirement — along with four to five times normal insulation and south facing windows for passive solar heating — is air tightness. Air volume leak-out is limited to 0.4 per cent. Energy usage must only be 15 kilowatt hours per square metre (compared to 200-300 standards). Air quality issues facilitating the transmission of COVID-19 respiratory viruses can result from such tight envelopes.

Tantrum, however, uses two Passivhaus-accepted energy recovery ventilation (ERV) units that continuously pull in fresh external air while venting interior air 24/7. The incoming air is warmed or cooled by the exiting interior air, achieving 80 to 90 per cent transfer efficiency without co-mingling and thus without any opportunity for cross-contamination. Interior air is fully replaced each hour. In addition, ERV systems maintain optimum humidity which further counters virus transmission. As there is no co-mingling, HEPA filters are employed only on air intake to remove pollutants.

Tantrum's geometry is three elongated boxes stacked such that the first level is recessed both front and back under the cantilever of the longest second level. The third is set well back on the building's street facade. The street level houses the bicycle store's retail, workshop and rental areas, the last accessible from rear lane parking. As throughout all levels, the peripheral, precast concrete sandwich wall is left raw. Strips of naturally stained wood are applied to accommodate display racks. Honey-rich wood is repeated in the long service desk that sits below a unique cluster of flat LED panel lights.

Stairs, accessed directly from the street, ascend to the upper two-level spaces that are not what they seem from the exterior. The middle section is a two-storey "great room" with large south facing clerestory windows at the third-storey level, flooding the interior with natural light. Two single-storey enclosed offices extend into the cantilever, both with south-facing windows pouring more light through transparent glass walls into the great room. Behind the double height central space is more co-working space augmented by two private offices. A mezzanine level above overlooks the two-storey space and includes both open workspace and a single enclosed office.

The law office space, designed with interior designer Kimberly Offord, has been kept simple with the grey concrete perimeter walls matched with wood planks on some office walls and elegant, partially perforated wood ceilings. Sheer walls, floors and ceilings are Lignatur's prefabricated cross-laminated timber (CLT) panels. Playful colour is contributed by carpet tiles created from reclaimed fishing nets. The great room is further animated by a whimsical mobile meeting room, literally a CLT peaked-roof cabin on wheels.

Without compromising design, the future of healthy interiors must and can be based on understanding the need for and maintenance of excellent ventilation. ■