

# FLASHOVER

***Flashover* is a monumental, immersive artwork about bushfire. It is a journey through a bespoke architectural and sonic environment staging six interrelated media works spread over 14 screens.**

Pieced together from the memories of volunteer firefighters, *Flashover* contemplates the cycle of bushfires fuelled by the climate emergency and our collective inability to break society's disastrous habitual loops. It evokes fires past, present, and the inferno to come if we refuse to act.

A flashover, or burnover, occurs when bushfire sweeps across the landscape more quickly than firefighters can outrun it, forcing them to seek refuge in their truck until the fire passes over them. They create a water halo around the truck, wear oxygen masks, and cover themselves with fire blankets, hoping that the flames will flashover before their water and air runs out. If they survive and emerge into the fire's aftermath they witness a transformed world where the fuel of living things is fully spent and flames ignite from thin air.

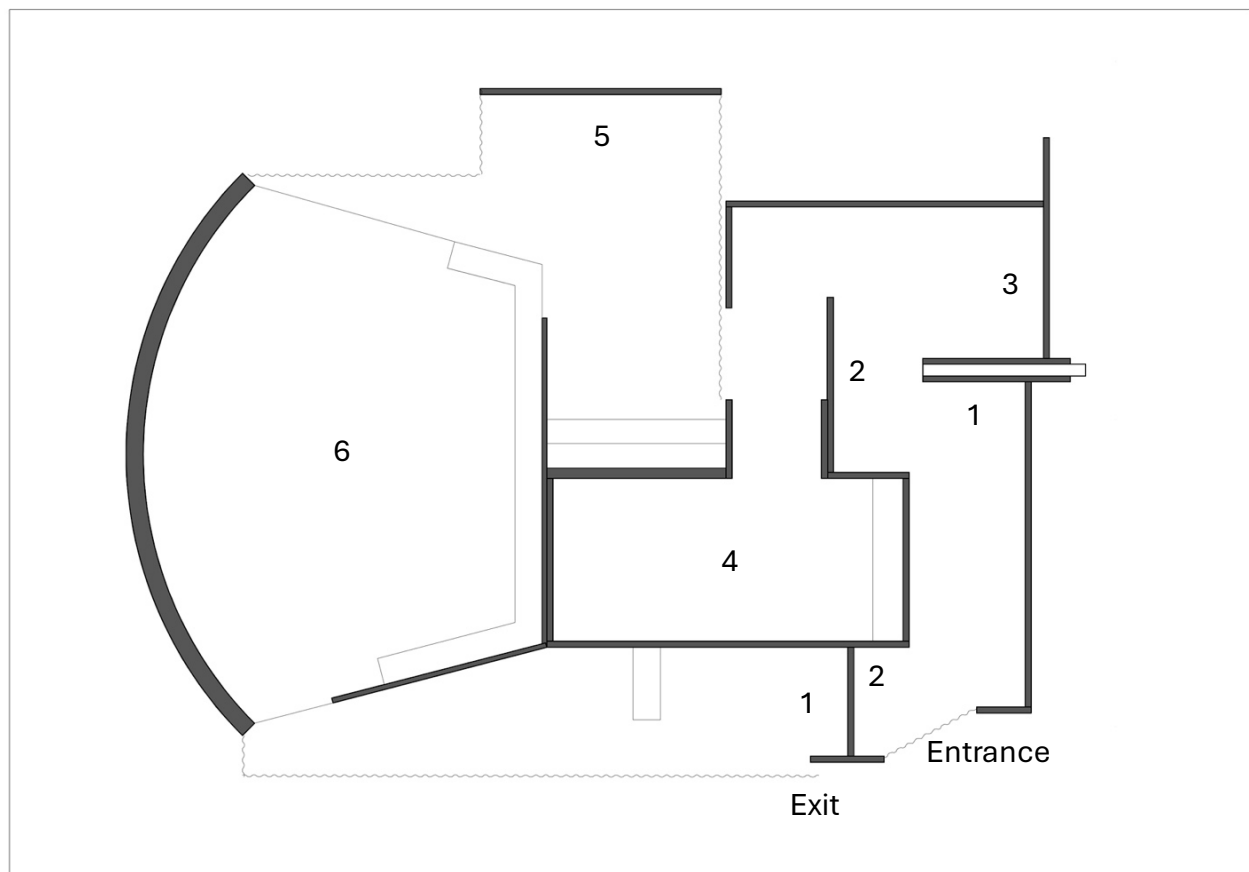
*Flashover* invites visitors to look beyond the human viewpoint to encounter bushfire from the perspectives of flora, fauna, and the fire itself by exploring a labyrinth of minuscule and monumental screens.

The catastrophic 2019/20 Black Summer bushfires were the most devastating in Australian history and were undoubtedly exacerbated by human-caused climate change. The subsequent COVID-19 pandemic did much to displace the devastating toll of the fires in the popular imagination, and we felt that this national trauma has not been adequately acknowledged, mourned, or actioned.

*Flashover* is a single artwork comprising six media works, inspired by a single 15-minute episode during Black Summer, where a volunteer fire crew survived a flashover. All the elements of this project were created through computational processes and combine different emerging expanded photographic techniques including photogrammetry, 3D Gaussian Splatting, 3D animation, and dynamic simulation. The images on screen are staged in tandem with multichannel spatialised sound including custom-designed kinetic ultrasonic speakers, architectural space, dramaturgy, and scent. The multichannel sound piece is designed as a recombinant set of materials that create a sense of both presence

and absence using guitar, bass, drum kit, bass clarinet, clarinet, ondes martenot, vocals, EVI wind controller, hydrasynth, live radio communications, and location recording.

*Flashover* is a refuge from the everyday, a place to think differently about the world and our place in it. Visitors encounter a quiet, meditative environment, quite at odds with the usual Hollywood and computer game vision of fire as a war, full of heroes and villains. Here, time is suspended and collapsed. Each element hangs in a perpetual loop, neither ending or beginning, igniting or burning out.



**1. "All we found were bones," say veterinary workers distressed at the remains of three billion native vertebrates that perished.**

Two-panel life-size portraits of male Western Grey Kangaroos animated into inescapable loops.

Media: 3D animation of kangaroo, 2 Large LED screens, soundscape.

Dimensions: 60s loop, 16s loop.

**2. 24 million hectares burned, an area larger than 124 countries, including Monaco, Gibraltar, Tuvalu, Bermuda, San Marino, Liechtenstein, Marshall Islands, Aruba, American Samoa, Cayman Islands, Saint Kitts and Nevis, Maldives, Malta, Grenada, Virgin Islands, Mayotte, Saint Vincent and the Grenadines, Barbados, Antigua and Barbuda, Seychelles, Northern Mariana Islands, Palau, Guam, Saint Lucia, Singapore, Bahrain, Tonga, Dominica, Netherlands Antilles, Kiribati, Turks and Caicos Islands, Sao Tome and Principe, Faroe Islands, Comoros, Mauritius, Luxembourg, Samoa, French Polynesia, Cape Verde, Trinidad and Tobago, Brunei, Puerto Rico, Cyprus, The Gambia, The Bahamas, Lebanon, Jamaica, Qatar, Vanuatu, East Timor, Swaziland, Kuwait, Fiji, New Caledonia, Slovenia, El Salvador, Israel, Belize, Djibouti, Rwanda, Burundi, Albania, Haiti, Solomon Islands, Equatorial Guinea, Guinea-Bissau, Armenia, Belgium, Lesotho, Moldova, Netherlands, Bhutan, Switzerland, Estonia, Denmark, Slovakia, Dominican Republic, Costa Rica, Bosnia and Herzegovina, Croatia, Togo, Latvia, Lithuania, Sri Lanka, Ireland, Georgia, Sierra Leone, Panama, Czech Republic, Austria, Azerbaijan, United Arab Emirates, Jordan, Serbia and Montenegro, Hungary, Portugal, Malawi, Liberia, Iceland, Eritrea, Guatemala, Bulgaria, Cuba, Benin, Honduras, Nicaragua, Greece, Bangladesh, Tajikistan, Nepal, Tunisia, Suriname, Uruguay, Cambodia, Syria, Kyrgyzstan, Senegal, Guyana, Uganda, Belarus, Ghana, Romania, Laos, United Kingdom.**

The first five ember studies of 124, one for each country smaller than the area that burned in the Black Summer fires in 2019/20. Video loops of five embers animated to smoulder in perpetuity and never burn out.

Media: 3D animated point clouds, 6 OLED video screens of varying sizes, photogrammetric models, soundscape, scent.

These studies of individual embers are created using photogrammetry, a process of translating hundreds of photographs of actual embers – burning pieces of bark, twigs, and leaves - into 3D objects comprised of tens of thousands of coloured points. Each cloud of points resembles a hyper-detailed, magnified ember floating in a void. The embers glow, burning in a suspended moment of perpetual transformation, neither beginning nor ending. Embers are created from all kinds of organic matter set alight by

radiant heat and fire and transported by wind far beyond the fire front, causing new fires to start where they land. Despite their terrifying power to cause catastrophic fire, embers themselves are beautiful, made from a wide range of matter, and are as diverse as snowflake patterns with each one being completely unique. However, their complex specificity is often represented by glowing dots in cinema, illustration and other media that reduces them to a homogeneity not found in actual fires. By focusing on these overlooked, but central, elements of fire these ember studies reveal something of the specificity of each fire. Their small size belies the big tale they tell. Our experiments with these tiny embers revealed each as a landscape, which provokes speculation of their resemblance to meteors and other worlds, also burning.

### **3. Fire Orchids *Pyrorchis nigricans* have fleshy, oval leaves and form colonies which flower profusely after bushfires.**

Diptych referencing settler-colonial botanical portraits of fire orchids, alive and dead.

Media: Animated photogrammetric point clouds, 2 OLED screens, soundscape.

Dimensions: 2 x 32s loops.

This double panel artwork references colonial taxonomical botanical studies of a fire orchid in contrasting states of its life cycle: full bloom, and a month later, dried out and dead. The exact conditions for the natural propagation of fire orchids remains a mystery, but we know they need fire to bloom. They grow in colonies on previously burnt ground. The orchids often flower *en masse* but can also bloom as individuals scattered amongst a dormant colony. Unlike many orchids, fire orchids are asexual and colonial, with all flowers in a colony likely coming from one seedling. Unusually, they remain upright as they die and appear burned as if torched by fire. In the Pyrocene, described by Stephen J. Pyne as a new age of fire, the fire orchid is a signifier of the failure of settler-colonial land care practices. These orchids represent settler misunderstanding of how intricate indigenous lifeforms, biological systems, and fire operate in concert to maintain a healthy ecology. Orchids are a bellwether for catastrophic climate imbalance. That they still exist inspires hope that we can find new ways of looking at and being with life.

### **4. 4 of 64,500 volunteers**

Diptych of volunteer firefighters in portrait and landscape. Each firefighter's backdrop is created from their memories of encounters with fire. Volunteer Firefighters: Catherine Bourne, Jack Carrington, Sara Poynton, Joey Sloodman.

Media: 4 x 3D photographs (volumes rendered using Gaussian splat techniques), 2 LED screens, virtual camera, soundscape.

Dimensions: 2 x 5 minute loops, portrait and landscape.

64,500 people volunteered during Black Summer 2019/20. Four 3D photographs of firefighters are set against vivid backdrops, created from the firefighters' memories of fire events they have experienced. A vertical portrait of the firefighter in close-up, and a horizontal landscape situating them in their recollected scene, are the product of the same 3D photograph explored by two roving virtual cameras. To make these images, each firefighter was captured in front of their backdrop by 600 still photographs. These stills were transformed into a '3D photograph' using Gaussian Splat computational techniques. The shard-like textures are the 'splats' themselves, emerging as by-products of the algorithmic image-making process and appearing like smoke, fibres or abstract shapes. Despite these seeming fractures, the resulting images fuse the human within the landscape enabling us to reconsider the co-emergence of person and place, moment and memory. As the images move from abstract shapes to vivid hyperreality, the partiality of memory is revealed. We cling to vivid details but our recollections are shot through with glitches, blind spots, and gaps. Mercifully, there are details we cannot recollect.

## 5. I saw the air burn

Computer simulation of a perpetual fire vortex that never burns out, diminishes, ends or begins.

Media: Animation of ignited gas, dynamic playback, soundscape. 9 x 4m 4K projection with moving light overlay, 250 frames per second video, software adjusting playback speed and sound live.

This simulation of fire, the only flames depicted in *Flashover*, stretches 9m from the floor to the ceiling and is presented at a proximity that would likely be lethal were you misfortunate enough to encounter this shocking phenomenon of wildfire so close. Firefighters, however, did witness fire vortices in Black Summer. Here, the sheer size and complexity of the vortex does many strange and uncomfortable things to the viewer. It is too big to take in, too abstract to truly fathom, too unresolving to give any secrets away, and is challenging to sit with. It is an impossible fire, impossibly close, that never resolves, or burns out, or burns you. Full of arcane details beyond our ability to comprehend, the vortex appears to be complete chaos, live, and unrepeating. It is the only work in *Flashover* that is autonomous, speeding up and slowing down to its own internal chaotic logic, unsynchronised with the works around it, and outside of human control. And these moments, especially the slowing, are palpable. The awe, mystery and beauty present here is in dialogue with the fire pillars and burning columns littering mythologies and monotheisms, where flame vortices herald connection to supernatural powers and realms.

## 6. Flashover

A perpetual film shot from a firefront's perspective as it moves through a pristine forest, transforming life into fuel and reducing its complexity to homogenous carbon remains: ash. The forest, its inhabitants and visitors, are rendered through high-fidelity arrangement of individual points created from actual places, plants, people, and machines in the world. We are all made of the same stuff, and are 'seen' with the same indifference by fire: molecular fuel.

Media: 3D point cloud animation, 120 million points, 10 x 4.2m curved LED wall, soundscape.

Dimensions: 12:20 minute loop.

The story of this animated artwork was inspired by the experience of being caught in a flashover. A flashover occurs when bushfire sweeps across the landscape more quickly than firefighters can outrun it, forcing them to seek refuge in their truck until the fire passes over them. They create a water halo around the truck, wear oxygen masks, and cover themselves with fire blankets, hoping that the flames will flashover before their water and air runs out. If they survive and emerge into the fire's aftermath they witness a transformed world where the fuel of living things is fully spent and flames ignite from thin air. However, this animation takes an imaginative leap to decentre the human experience of this event and tell the story of a flashover from the fire's perspective. Hence the use of pointclouds created from over 30,000 photographs of the Australian bush which maintain the specificity of actual subjects like trees, orchids, and embers, but highlights a molecular vision, hungry for fuel. The molecules of life are represented here by four terabytes of point data. We appreciate fire cannot see or think in any way we can comprehend, but by attempting to consider perspectives different to our own, we aspire to create the imaginative space for refreshed appreciation of bushfire that breaks the loops we are caught in.