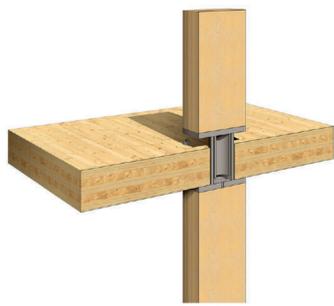
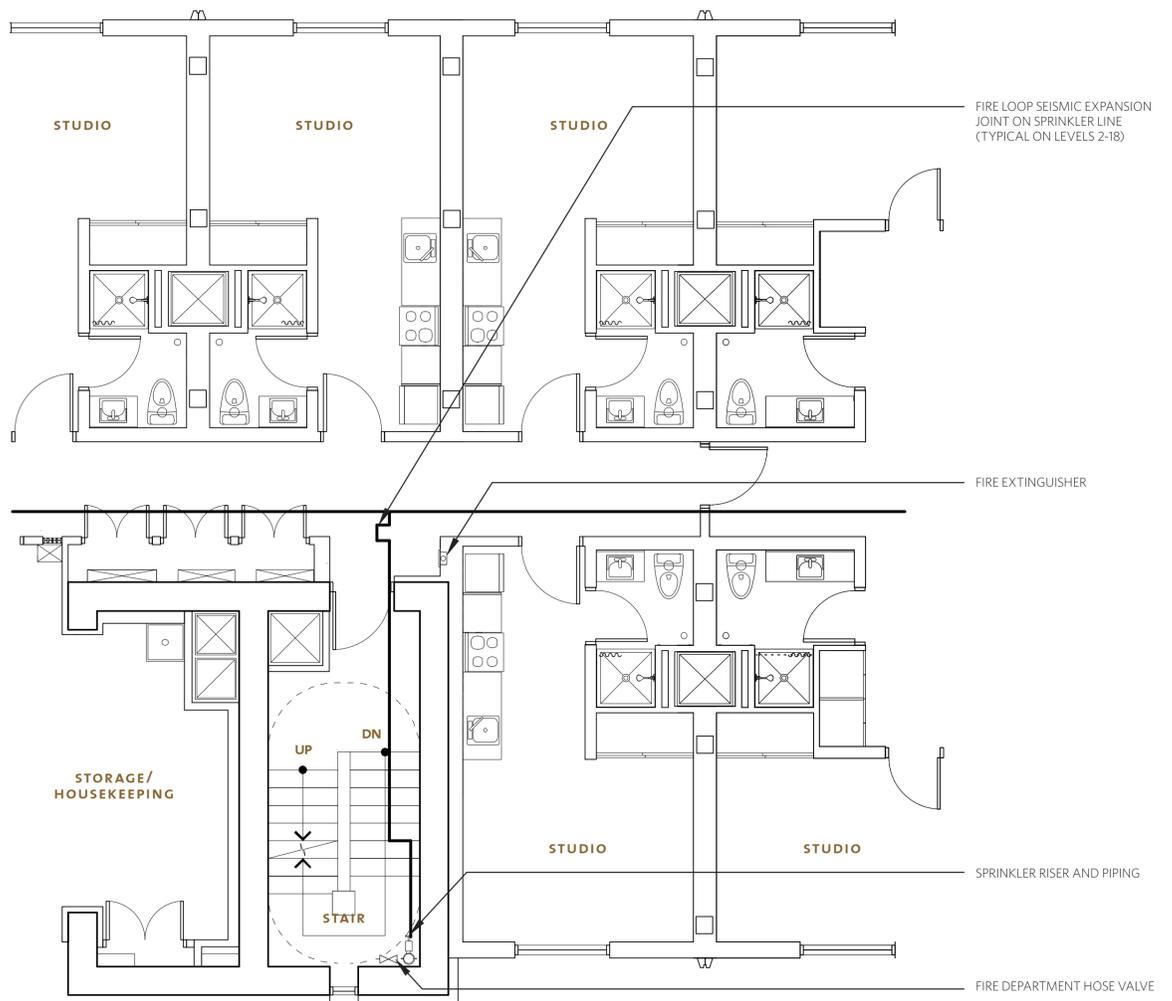




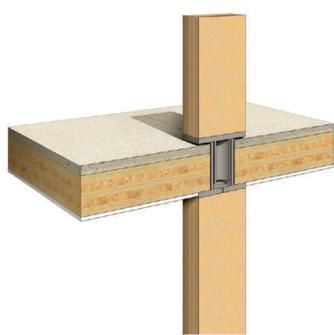
BROCK COMMONS TALL WOOD BUILDING FIRE PROTECTION

Fire protection was a key consideration in the design of Brock Commons. One of the main focuses of the UBC Tall Wood Building Regulation (the site specific regulation for this project) is to ensure that the level of occupant health and safety protection is equal to or better than what is required by the BC Building Code for a non-combustible (i.e. concrete) building of this size. To achieve this the design utilizes passive fire protection, active fire detection and suppression techniques, as well as measures to protect the building during construction.

Most of these techniques are common for residential high-rise buildings in BC, including the fire resistance rating (FRR) separation. FRR separations serve to limit the probability that structural elements, floors and loadbearing walls exposed to fire will prematurely fail or collapse, preventing occupants from exiting and first responders from entering, as well as lead to the spread of fire between storeys. The ratings ensure that the structural system has an acceptable level of endurance during a fully developed fire in the event that the sprinkler system fails.



CLT floor slabs with glulam columns and steel connectors



Partial encapsulation during construction



Completed construction

1 FIRE PROTECTION STRATEGIES DURING CONSTRUCTION

- Less than four levels of unprotected wood during construction.
- Protection of wood structural elements by installing a layer of Type X gypsum board and concrete topping as structure is built.
- Functional standpipe in concrete cores.
- On-site security and fire watch.

3 ACTIVE FIRE PROTECTION STRATEGIES

- Single stage and addressable fire alarm system, with audible and visual signal devices.
- An automatic sprinkler system and a standpipe system, connected to the municipal water system, and backed-up by a 20,000 litre on-site water tank and fire pump (both running on emergency power). The tank provides 30 minutes of water supply, and close to 100 percent system reliability.
- Fully sprinklered residential units, with recessed sprinkler heads to limit potential accidental damage. Fire extinguishers are also provided on each level.
- A dry sprinkler system (to limit water freezing and pipe damage) installed under the exterior CLT canopy.
- A water curtain for areas where 100% unprotected openings are required, specifically the ground level public spaces adjacent to the parkade.
- Monitored and electrically supervised alarm and sprinkler systems with signals to the Vancouver Fire Department.
- Expansion joints where the sprinkler riser exits the concrete core on each level.

2 PASSIVE FIRE PROTECTION STRATEGIES

- Non-combustible ground level and stair/elevator cores, which serve as the exits for the upper levels.
- Full encapsulation of the wood structure (with the exception of the 18th floor lounge, which is fully sprinklered) in multiple layers of Type X gypsum board to provide a 2HR fire resistance rating (FRR) for all the structural assemblies.
- A 2HR FRR between each floor level and for all vertical shafts, and no interconnected floor space.
- An enhanced 2HR FRR between the residential units (only 1HR FRR is required by code) and 1HR FRR between the units and the corridor, which is pressurized.

