

## HVAC AND FIRE PROTECTION DETAILS

This Advisory provides guidance for the submission, review and inspection of HVAC and fire protection details. Please note that all items may not apply to all project types and typically a professional engineer is required to design and review most items listed below.

Please ensure the documents submitted in support of the building permit application include, but are not limited to, the following details:



### EXIT SIGNS, EMERGENCY LIGHTING AND POWER

- Location of exit and directional signs
- Floor plan showing emergency lighting systems
- New, existing and relocated devices
- Inverters, battery packs, generator



### FIRE ALARM SYSTEM

- System description (e.g., single or two stage, conventional vs. addressable, etc.)
- Design specifications
- Floor plans showing device layout and equipment controls
- Typical fire alarm details/schematics (e.g. isolation details)
- New, existing and relocated devices
- Single line/riser diagram and wiring methodology
- Sequence of operations and system functions (silencing within residential suites, air handling units serving more than one floor level functions, etc.).
- Zone schedule
- Voice communication (one-way vs. two-way)
- Floor plan illustrating existing and proposed locations of the fire alarm control panel.
- Basic wiring schematic, installation, verification and monitoring details

- Clearly indicate the scope of existing / new systems, the maintenance during construction / alteration and the re-connection details upon completion.
- Details of electrical supervision of, and alarm initiation by, sprinkler system(s).
- If sprinklers are provided in lieu of fire detectors, whether the detector being substituted is required to be a zone on the annunciator.
- Verification as to how multiple buildings' systems are to interact with other buildings' systems, including auxiliary building systems.
- Fire resistance rating of wires

### ITEMS TO CONSIDER:

- Is the existing network wiring and/or field wiring being maintained?
- Are existing field devices being maintained?
- Is additional fire alarm equipment being installed as a result of the panel replacement?
- If the answer is YES to any of the above questions, then details are required.



### KITCHEN EXHAUST

- Design standard (NFPA 96)
- Floor wall and ceiling / roof construction adjacent to kitchen exhaust hood/system
- Construction materials and methods (i.e., type of steel and thickness, types of welds, use of listed filters, etc.)
- Dimensions of all cooking appliances (height, width, diameter, etc.)
- Exhaust duct termination details, complete with dimensions to property lines (above roof, side wall)
- Section details illustrating the clearances between the exhaust system and all building assemblies. Include details of assembly construction (non-combustible, limited combustible, etc.).

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### KITCHEN EXHAUST (CONT'D)

- Details on clearance reduction systems, if required
- Equipment schedule (hoods, fans and appliances) including secondary air filtration systems (i.e. ecologizer), if applicable
- Dimensions of all cooking appliances (height, width, diameter, etc.)
- Manufacturer's specifications/cutsheets/shop drawings for listed equipment
- Location of pull stations and fire extinguishers



### SPRAY PAINT OPERATIONS

- Full details on spray operations e.g., type of spray application and listing details
- Details of spray equipment (Certified booth or engineered) and system interlocks
- Details of the spray enclosure
- Spray enclosure location
- Ventilation rates, fan configurations and air velocities including monitoring
- Product classification and storage location
- Exhaust duct details (material, required clearances and discharge location)
- Fire protection system



### ELECTROMAGNETIC LOCKS

- Floor plans indicating device locations and room labels (maglocks, maglock key switch, pull stations and emergency lighting)
- Occupancy classification of areas to be served by proposed maglocks and occupant load
- Indicate the type of system used and whether a UPS is to be provided.
- Sequence of operations will be required on site



### SPRINKLER SYSTEMS

- Sprinkler standard design (NFPA 13, 13R, 13D)
- Hydraulic calculations are to consider the pressure loss due to the backflow prevention device used.
- For major alterations and new systems, provide fully detailed sprinkler drawings.
- For minor alterations, include enough detail of the existing system(s) to make all existing conditions clear. This includes showing the location of new, relocated and deleted sprinkler heads and associated piping.
- Details of fire pump used (NFPA 20)
- Sprinkler protected glazing (ULC/ORD-C263.1-99)
- Specialized fire protection systems
- Adequate water supply data such as municipal/private supply, pressure etc.

**NOTE: Depending on the scope of the changes, hydraulic calculations may be required.**

- For new tenants in existing buildings, provide details of the new operations and the existing sprinkler system design criteria.
- When altering the fire load in an existing building, fully detail the storage with floor plans showing the location, configuration, height, etc. Identify the design criteria of the existing sprinkler system.



### STANDPIPE SYSTEM

- Design standard (NFPA 14)
- When required, hydraulic calculations are to be based on up-to-date fire hydrant flow test information.
- For major alterations and new systems, provide fully detailed drawings.
- For minor alterations, provide sufficient detail of the existing system(s) to make all existing conditions clear. This includes showing new, relocated and deleted standpipe hose connections and associated piping.

**NOTE: Depending on the scope of the changes, hydraulic calculations may be required.**

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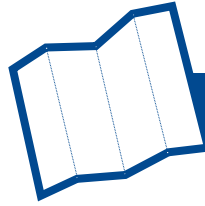
### SPECIALIZED MECHANICAL SYSTEMS

- High buildings under the scope of OBC 3.2.6 - stairwell pressurization, smoke control, venting and elevator details
- Carbon monoxide exhaust systems within parking garages
- Location of Central Alarm Control Facility room, including rated construction



### LOW-RISE RESIDENTIAL SYSTEMS

- Confirmation of sizing as per standard (CSA F280)
- Efficiencies of heating and cooling systems, water heaters
- Duct sizing line diagram including material used
- *Mechanical Ventilation Design Summary* sheet



### SITE PLAN

- Fire-route compliance (including but not limited to route location, gradient, construction material and load capacities, overhead clearance, centreline turning radii, obstructions to the fire route)
- Municipal address
- Fire hydrant locations and unobstructed fire department connection location
- Proximity to overhead electrical lines