

APPENDIX 3E

OCCUPATIONAL HEALTH AND SAFETY

Occupational Health & Safety

September 16th, 2013

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1.0 INTRODUCTION

1.1 Healthy workplaces ensure that staff can work safely and efficiently. Creating an environment that keeps staff uninjured and health while at work will ensure that there are adequate personnel resources to provide excellent patient care and service. Clinical needs must be balanced with ergonomic, safety & violence prevention precautions; PHSA Workplace Health must be consulted throughout the life of the project, particularly in the design phase.

1.2 The design of the Facility shall:

- (a) Provide detailed design features, which expressly facilitate the physical activities of the staff and patients to increase their safety, efficiency and general well being, and assist in eliminating or reducing all worker injury risk factors;
- (b) Provide worker safety design consistent with current 'Best Practices' of all work spaces to eliminate or reduce injury to health care workers; and
- (c) Meet or exceed a) the Occupational Health & Safety Regulations of BC (OHSR) b) all standards referenced in the OHSR c) CSA standard Z8000 d) the Fraser Health New Building & Renovations Handbook for Health & Safety Issues, 2005 and e) all standards pertaining to health & safety referred to in Schedule 3.

1.3 PHSA is committed to exceeding minimum OHSR compliance and instituting best practice/evidence based design. Further considerations to achieving 5.8.1.2 include:

- (a) **Spatial Equality:** The workplace shall be designed to meet the functional needs of users by accommodating tasks to be undertaken without compromising individual access to privacy, daylight, outside views, and aesthetics;
- (b) **Healthfulness:** The workplace shall be housed in a healthy environment with access to fresh air, natural light, and water, and is free of harmful contaminants and excessive noise;
- (c) **Flexibility:** The workplace configuration shall adapt to typical organizational and work process changes but also can be readily reconstructed to accommodate major functional changes;
- (d) **Comfort:** The workplace shall allow workers to adjust thermal, lighting, acoustic, and furniture systems to meet personal and team comfort levels;
- (e) **Technological Connectivity:** Workplaces on-site (team space, conference/ multimedia space,) and off-site (telecommute centre, home office) shall allow easy communication among distributed co-workers while allowing simultaneous access to data;
- (f) **Reliability:** The workplace shall be supported by state-of-the-art heating, ventilating, and air-conditioning, lighting, power, security, and telecommunications systems and ventilating equipment that require minimal maintenance downtime and are designed with back-up capabilities to ensure minimal loss of service; Note: ability for the ventilation system to adjust to changing load capacities/increases in the number of occupants must be considered and planned for; and

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- (g) Sense of Place: The workplace shall have a unique character, with an appropriate image and identity, enabling a sense of pride, purpose, and dedication for both the individual and the workplace community.

2.0 HUMAN ENGINEERING

2.1 Workstation Ergonomics

The C&W site will adopt the latest guidelines for workplace ergonomics as set out in Ergonomics in Hospital Design, A Guide and Workbook to Prevent Musculoskeletal Disorders, Ontario Safety Association for Community & Health Care. The following subsections detail specific requirements for computer workstations:

- (a) The workstation layout shall provide chairs that:
 - (1) Workstation chairs will be able to be adjusted to different heights, making it possible for employees of all sizes to rest their feet comfortably on the floor;
 - (2) Workstation chairs will have 5-prong base for stability;
 - (3) Have height and tilt adjustable backrests;
 - (4) Have height adjustable armrests that are detachable (also option to have or not have armrests);
 - (5) Adequate lumbar support
- (b) The workstation will:
 - (1) be height adjustable to accommodate sitting or standing
 - (2) enable the employee to see the screen clearly without leaning forward;
 - (3) include height adjustable monitors
 - (4) have rounded edges and corners
 - (5) be "L" shaped, with equal sized wings, with a corner piece that goes straight across
 - (6) keyboards will not have a numeric keypad (to improve mouse location); any keyboards with numeric keypads (e.g. for those staff who require it) must have a detachable numeric keypad
 - (7) peripherals (keyboard & mouse) will be wireless
 - (8) mouses will be large enough to support the entire hand and will designed to accommodate left or right handed users

2.2. Laundry Systems

The facility 's laundry system will be a toter bin system.

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2.3 Ceiling Lifts (No manual lift model of care requirements)

British Columbia Health Authorities are bound by the Memorandum of understanding between Association of Unions and Health Employers Association of British Columbia, Manual Lifting Excerpt (2001), which requires the PHSA to have the goal of eliminating all unsafe manual lifts of patients; this is to be accomplished through the use of mechanical equipment. The following subsections outlines ceiling lift requirements for selected areas of the facility:

- (a) All patient rooms must be:
 - (1) designed to accommodate ceiling lifts with an X-Y gantry track and fixed motor
 - (2) meet specifications outlined in: Output Specifications, Interior Health Workplace Health & Safety, 2007)
 - (3) Paediatric units: Ceiling lift tracks must be weight tested and approved to a minimum of 300 kg; ceiling lift motors will be 205 kg capacity motors in standard rooms; ceiling lift motors will be 300 kg capacity in bariatric rooms.
 - (4) Women's (LDR): Ceiling lift tracks must be weight tested and approved to a minimum of 455 kg; ceiling lift motors will be 205 kg capacity motors in standard rooms; ceiling lift motors will be 455 kg capacity in bariatric rooms.
- (b) Ceiling Lift Track Locations
 - (1) All Medical/Surgical bedrooms;
 - (2) All PICU bedrooms;
 - (3) All AIR rooms;
 - (4) All HDU rooms;
 - (5) All ACU short stay (24 hour) rooms ;
 - (6) All Bariatric inpatient and patient rooms;
 - (7) 1 Patient Treatment Room (non AIR room) in Emergency;
 - (8) Burn Bath/Assisted Bath/Shower Suite for transfer to bath;
 - (9) Tub Room (PICU) for transfer to bath;
 - (10) Physiotherapy/ OT Gym – two tracks (15m in length); and
 - (11) 2 Oncology Rooms.

2.4 Access and Mobility

- (a) Accessibility of Health Care Facilities and accessibility to providers is essential in providing medical care to people with disabilities. The following subsection provides guidance for the design of the facility with respect to people with mobility disabilities, which include, for example, those who use wheelchairs, scooters, walkers, crutches, or no mobility devices at all.
- (b) In addition to the VBBL, the BC Building Code and all other standards referenced in this Appendix & Schedule 3, the following must be adhered to:
 - 1. Ergonomics in Hospital Design, A Guide and Workbook to Prevent Musculoskeletal Disorders, Ontario Safety Association for Community & Health Care
 - 2. FHA Bariatric Room Design Guidelines, 2010

3.0 SPACE STANDARDS AND DIMENSIONS

3.1 Space Standards & Dimensions

- (a) The design of the millwork shall meet the requirements set out in:
1. Output Specifications, Interior Health Workplace Health & Safety, 2007 [except NOTE that mill work is not to be used for computer workstations (furniture systems are more flexible and changes can be made to the whole or to a part of a system)]
 2. FHA Recommendations for the Ergonomic Design of Storage, Shelving & Racks (2010).

3.2 Team Stations

- (a) Must be designed per the Ergonomics in Hospital Design, A Guide and Workbook to Prevent Musculoskeletal Disorders, Ontario Safety Association for Community & Health Care, 2006

4.0 INDOOR AIR QUALITY, including HVAC and LEV

- 4.1 Indoor air quality is a key design concept for a health care facility. Providing properly circulating, fresh or purified air to all attendees within a facility is paramount. Removing indoor contaminants, not introducing outdoor contaminants, ensuring that hazardous chemicals are properly ventilated or captured must be incorporated into the thought process of the design of each area within the facility, each presenting its own unique challenges.

The design must adhere to:

- WorkSafe BC OHSR 4.70 – 4.80 Indoor Air Quality
- OHSR 5.48 – 5.71 refers to exposure limits of chemicals in air and the ventilation requirements when controlling exposure;
- ASHRAE/ANSI Standard 62, Ventilation for Acceptable Indoor Air Quality
- CSA Z317.2-10 and any other indoor air quality standard referred to in Schedule 3.

Documents to help inform achieving compliance include:

- ANSI-AIHA Z9.2-2006 Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems
- American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation – A Manual of Recommended Practice
- WorkSafeBC. *Occupational Health and Safety Regulation, Section 5.60 to 5.70.* <http://www.worksafebc.com>.
- Systems must be designed for the isolation or manual isolation of HVAC circuits in the response to reasonably foreseeable code breaches (major spill response).

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- Local exhaust ventilation must be designed such that exposure to contaminants is minimized and must be alarmed to signal system failure; alarm must alert staff in the immediate vicinity and plant services.

5.0 HEARING CONSERVATION (ACOUSTICS)

5.1 The design of the facility will:

- (a) Reduce external noise sources and internal noise sources (mechanical services and equipment noise) by taking into consideration the activities within each space and providing those spaces with the appropriate acoustically absorbent materials, and
- (b) Ensuring that criteria are set for plant, medical equipment, intrusion from external sources and general activities and that this is done under the design and direction of an acoustical engineer.
- (c) Adhere to WorkSafe BC OHSR 7.1 – 7.9 for noise exposure in the workplace and other design requirements specified in Schedule 3 and its appendices.

6.0 HAZARDOUS PRODUCTS

6.1 Chemical

- (a) Storage, utilization, transportation and disposal of hazardous chemicals must be considered when designing spaces. Criteria such as which chemicals are in specific areas, which chemicals are stored and in whatever quantities and their detailed storage requirements. Workflow design criteria also need to be considered to ensure that there is proper access to appropriate ventilation, local or general, proper disposal equipment and minimization of transportation of chemicals through inappropriate locations.
- (b) Adhere to the following WorkSafe BC OHSR standards and other applicable standards (VBBL, Fire Code):
 1. OHSR 5.25 – 5.26 refers to storage of hazardous substances;
 2. OHSR 5.27 – 5.35 refers to storage of flammable and combustible substances;
 3. OHSR 5.48 – 5.71 refers to exposure limits of chemicals in air and the ventilation requirements when controlling exposure; and
 4. OHSR 5.85 – 5.96 refers to emergency washing facilities.

Documents to help inform achieving compliance include:

- Local Exhaust Ventilation for Controlling Airborne Formaldehyde Levels During Formalin Dispensing Tasks, Design Standard – New Construction FHA; and
- Operating Room Formalin Dispensing Local Exhaust Ventilation Specifications, FHA.

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6.2 Biohazards

- (a) Blood and body fluid materials in the various locations within a health care facility require design consideration of the containment, collection and disposal of these agents as well as materials contaminated with these substances. Soiled laundry methodology will impact design criteria as there might different equipment storage requirements. Collection of biohazardous wastes methodology will also impact design requirements.
- (b) All furnishings must be cleanable and/or capable of being disinfected.

6.3 Sharps

- (a) An integral part of biohazardous material control is the disposal of sharps and the methodology of containment and disposal will have direct design implications.

Documents to help inform achieving compliance include:

- Guidance for Locating Sharps Disposal Containers, OHSAH.

6.3 Radiation

- (a) There are a multitude of areas in a health care facility where there are radiation hazards that require very specific design requirements to the location, workflow, and building materials.
- (b) Adhere to: WorkSafe BC OHSR 7.17-7.25 refer to radiation exposure and all references standards, laws & codes and Operating Room Laser Safety Design Considerations (FHA).

6.4 Hazardous Drugs/Cytotoxics

There are a multitude of areas in a health care facility where there are hazardous drugs that require very specific design requirements to the location, workflow, and building materials.

Adhere to Occupational Health and Safety Regulations 6.42-6.58

7.0 OCCUPATIONAL FIRST AID

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- 7.1** In the WorkSafeBC Occupational Health and Safety Regulation there are requirements for an occupational first aid room and those design specifications guidelines are located at <http://www2.worksafebc.com/Publications/OHSRegulation/GuidelinePart3.asp#SectionNumber:FirstAidFacilities>

Adhere to WorkSafe BC OHSR 3.14 – 3.21 Occupational First Aid requirements.

8.0 HEALTH PROMOTION

8.1 The Core Public Health Functions for BC: Model Core Program Paper for Healthy Communities (a document issued by the Population Health and Wellness division of the Ministry of Health) recommends that Health Authorities develop healthy work practices and facilities in health authority settings. The building design will include:

- (a) Staff shower facilities (with lockers & change rooms).
- (b) Stairs & Point of Choice Signage:
 - 1. Stairs located near elevators to make the choice more obvious; and
 - 2. Point-of-choice signage displayed by all elevators outlining the health and green benefits of taking the stairs;
- (c) Secure bike racks, designed to discourage theft – to promote biking as an alternative to driving.
- (d) Landscaping/Walking Loops:
 - 1. Gardens & green spaces promote mental health; and
 - 2. Chip trails or designated walking paths on site would promote walking & exercise on breaks.
- (e) Staff Nap/Quiet Rooms:
 - 1. A quiet, dark, cool and interruption free room for staff to rest in during breaks.

9.0 OCCUPATIONAL ENVIRONMENT

9.1 As per 5.8.1.2(3), the OHSR must be adhered to. Occupational Environment requirements of particular note include:

- (a) WorkSafe BC OHSR 4.1 refers to requirement that a workplace must be planned, constructed, used and maintained to protect from danger any person working at the workplace;
- (b) WorkSafe BC OHSR 4.2 refers to requirement that each building and temporary or permanent structure in a workplace is capable of withstanding any stresses likely to be imposed on it;
- (c) WorkSafe BC OHSR 4.32 refers to access to work areas requirements;
- (d) WorkSafe BC OHSR 4.33 refers to arrangement of work areas requirements;
- (e) WorkSafe BC OHSR 4.34 refers to restricted entry requirements;

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- (f) WorkSafe BC OHSR 4.84 refers to eating area requirements;
- (g) WorkSafe BC OHSR 4.85 refers to washroom facility requirements;
- (h) WorkSafe BC OHSR 4.86 refers to change room requirements; and
- (i) WorkSafe BC OHSR 4.87 refers to unsafe water requirements.

10.0 CONFINED SPACES

10.1 The facility design must be such that the number of confined spaces is minimized and the following must be adhere to:

- (a) WorkSafe BC OHSR Section 9 Confined Spaces, 9.4 Control of Hazards.

11.0 ILLUMINATION

11.1 Minimum requirements as in WorkSafe BC OHSR 4.64 – 4.69 include considerations for illumination levels, brightness, glare control, and emergency lighting. Additional requirements specified in Schedule 3 and its appendices must be adhered to.

- (a) All working areas must have provisions for task lighting.

12.0 SAFETY PRECAUTIONS

12.1 Violence in the Workplace Considerations

There are many ways a health care facility can be designed with the prevention of and mitigation of violent or aggressive incidents within the facility taken into consideration. All aspects of facility design for the ACC must consider violence prevention best practices. Further consultation with Workplace Health & Integrated Protection Services is required throughout the life of the project. For example: nursing stations require at least 2 exits, or at minimum, a secure area of refuge.

OHSR 4.27-4.30 refer to violence in the workplace regulations.

In additional to ongoing consultation with Workplace Health & Integrated Protection Services, OHS requirements can be achieved with reference to:

- (a) FHA Emergency Department Triage & Registration Design Guidelines; Emergency Room Space Specification Requirements for: Trauma Bay & Stretcher Bay (2010)
- (b) Ministry of Health and Ministry Responsible for Seniors *Hospital-Based Psychiatric Emergency Services: Observation Units*;
- (c) Interior Health *Facility Design Considerations to Reduce Violent Encounters in Emergency and Psychiatry Departments*; and

- (d) Interior Health Seclusion Room Specifications, Modified April 2010
- (e) CSA standard Z8000

12. 2 Emergency Decontamination

OHSR 5.48 – 5.71 refers to exposure limits of chemicals in air and requirements when controlling exposure.

For patients presenting at Emergency who could be a source of chemical exposure to staff, reaching compliance with OHSR can be informed with reference to:

Design must comply with Fraser Health Emergency Department Decontamination Room Design Recommendations