
University Health Network
Construction and Design Guidelines – Project Checklist

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1.0 PROJECT SET-UP – Scope Deliverables

Department	Items for Consultation	Supporting Documents
Corporate Departments		
<input type="checkbox"/> Space/Project Planning	<input type="checkbox"/> project scope with regard to uphill and downstream impact on infrastructure <input type="checkbox"/> space allocation & inventory <input type="checkbox"/> Corporate space and design standards <input type="checkbox"/> decanting requirements <input type="checkbox"/> furniture requirements <input type="checkbox"/> Wayfinding requirements <input type="checkbox"/> IT requirements <input type="checkbox"/> engineering study requirements <input type="checkbox"/> geotechnical & other study requirements <input type="checkbox"/> City of Toronto Building Permits <input type="checkbox"/> need for room mock-up (in consultation with end-users, and other departments contributing to these Guidelines)	<input type="checkbox"/> <i>UHN Approved Workspace Strategy</i> <input type="checkbox"/> <i>Lighting for Hospitals and Health Care Facilities – ANSI/IESNA RP-29-06</i> <input type="checkbox"/> <i>UHN Wayfinding Signage - Policy 1.80.005)</i>
<input type="checkbox"/> Facilities Risk	<input type="checkbox"/> Fire Safety requirements <input type="checkbox"/> Life Safety requirements <input type="checkbox"/> Office Of The Ontario Fire Marshal examination and final approval <input type="checkbox"/> hazardous materials sweep, pre & post decanting	
<input type="checkbox"/> Security Operations	<input type="checkbox"/> Security requirements	

Department	Items for Consultation	Supporting Documents
<ul style="list-style-type: none"> □ Radiation Safety and Radiation Protection 	<ul style="list-style-type: none"> □ pre-construction licensing and approvals □ structural radiography □ see “Radiation Emitting Devices” section below □ hazardous materials sweep, pre & post decanting 	<ul style="list-style-type: none"> □ UHN <i>Approval for Structural Radiography</i> policy (9.00.030) □ Canadian Nuclear Safety Commission <i>Design for Basic and Intermediate Level Radioisotope Laboratories</i> (R-52, June 7, 1991) □ NCRP-147, <i>Structural Shielding Design for Medical X-Ray Imaging Facilities</i> □ Safety Code 20A: X-ray Equipment in Medical Diagnosis □ Regulations for therapy installations – see RMP physicists. □ Canadian Nuclear Safety Commission G-129, <i>Keeping Exposures and Doses “As Low As Reasonably Achievable”</i>

Department	Items for Consultation	Supporting Documents
<ul style="list-style-type: none"> □ Energy & Environment 	<ul style="list-style-type: none"> □ Certificate of Approval applications □ project energy impact analysis (energy costs/savings) study, including consideration of alternate impacts of alternate designs and equipment □ recycling of demolition and construction waste □ re-allocation and/or donation of furniture or equipment □ hazardous materials sweep, pre & post decanting 	<ul style="list-style-type: none"> □ <i>Green Guide for Health Care</i> □ <i>Leadership in Energy and Environmental Design (LEED) Standard</i> □ <u>sample energy impact analysis wording for RFP</u> <p>Provide an estimated utility impact analysis, including calculations and assumptions, to show the net change in the area's utility consumption upon completion of the project including, but not limited to:</p> <ul style="list-style-type: none"> •net annual increase or decrease in energy consumption (electricity, heating and cooling) associated with changes in HVAC, presented in energy units (e.g, GJ/year, kWh/year, tonnes cooling/year , etc) •net annual increase or decrease in electricity consumption associated with changes in lighting fixtures and operation, presented in energy units •net annual increase or decrease in electricity consumption associated with changes in plug load (for large or many pieces of equipment), presented in energy units •net increase or decrease in water consumption associated with changes in equipment or processes, presented in volumes (e.g., litres/year, m3/year)

Department	Items for Consultation	Supporting Documents
<input type="checkbox"/> Infection Prevention and Control	<input type="checkbox"/> infection control requirements	<input type="checkbox"/> UHN Infection Control Standards <input type="checkbox"/> <i>Special Requirements for HVAC Systems in Health Care Facilities - CSA Z317.2-10, 2010</i> <input type="checkbox"/> <i>HVAC Design Manual for Hospitals and Clinics – ASHRAE, 2003</i> <input type="checkbox"/> <i>Guidelines for Design and Construction of Hospital and Health Care Facilities – American Institute of Architects (AIA), 2010</i>
<input type="checkbox"/> Occupational Health & Safety	<input type="checkbox"/> Hazardous Materials Report <input type="checkbox"/> Contractor Safety program expectations (to allow bidding parties to price appropriately)	<input type="checkbox"/> <i>Safety Orientation for Construction Contractors and Consultants</i>
<input type="checkbox"/> Medical Engineering	<input type="checkbox"/> power supply and quality for equipment <input type="checkbox"/> see “Radiation Emitting Devices” section below	
<input type="checkbox"/> SIMS	<input type="checkbox"/> IT requirements	
<input type="checkbox"/> Research	<input type="checkbox"/> laboratory design requirements	
□ Radiation Emitting Devices		
<input type="checkbox"/> Medical Engineering	<input type="checkbox"/> x-ray rooms <input type="checkbox"/> other radiation rooms	<input type="checkbox"/> UHN <i>Purchase and QC of X-ray Protective Shields Guide</i> <input type="checkbox"/> UHN <i>Guide to Planning and Installing X-radiation Protective Shielding</i>
<input type="checkbox"/> X-Ray Safety/Radiation Protection Office	<input type="checkbox"/> x-ray rooms <input type="checkbox"/> other radiation rooms	<input type="checkbox"/> UHN <i>Installation/Deinstallation Checklist</i> for radiation emitting devices <input type="checkbox"/> UHN <i>RED/HARP Equipment Acceptance Checklist</i> for radiation emitting devices
<input type="checkbox"/> Radiation Safety	<input type="checkbox"/> other radiation rooms	
Site Support Services		
<input type="checkbox"/> Facility Management	<input type="checkbox"/> removal of redundant and obsolete systems <input type="checkbox"/> equipment preventative maintenance and repair requirements	

Department	Items for Consultation	Supporting Documents
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> construction waste disposal, including costs <input type="checkbox"/> hazardous materials sweep, pre & post decanting <input type="checkbox"/> post decanting clean-up	

2.0 DETAILED PROJECT PLAN – Design and Materials

Department	Items for Consultation	Supporting Documents
Corporate Departments		
<ul style="list-style-type: none"> □ Space/Project Planning 	<ul style="list-style-type: none"> □ furniture □ sign-off on design & materials □ summary of consultant design assumptions 	<ul style="list-style-type: none"> □ <i>UHN Approved Workspace Strategy</i>
Facilities Risk		
<ul style="list-style-type: none"> □ Fire & Life Safety 	<ul style="list-style-type: none"> □ sign-off on design & materials 	
<ul style="list-style-type: none"> □ Security Operations 	<ul style="list-style-type: none"> □ sign-off on design & materials □ use of security cages on overhead data projectors □ use of security screws when mounting monitors 	<ul style="list-style-type: none"> □ <i>UHN Construction and Design Guidelines - Product Specifications</i>
<ul style="list-style-type: none"> □ Radiation Safety 	<ul style="list-style-type: none"> □ sign-off on design & materials □ see “Radiation Emitting Devices” section below 	<ul style="list-style-type: none"> □ <i>Canadian Nuclear Safety Commission Design for Basic and Intermediate Level Radioisotope Laboratories (R-52, June 7, 1991)</i>
<ul style="list-style-type: none"> □ Energy & Environment 	<ul style="list-style-type: none"> □ sign-off on design & materials □ space designed with future flexibility in mind □ energy efficient design and energy impact analysis, , including consideration of alternate impacts of alternate designs and equipment □ heat recovery (AHUs, waste water, etc.) □ optimized HVAC and lighting controls; tie-in to BAS □ maximize use of natural light □ low VOC products; avoid products that off-gas □ reduced use of PVC/vinyl, with intent to eliminate □ use of mercury prohibited □ reduced use of brominated fire retardants (e.g. polybrominated diphenyl ether) with intent to eliminate 	<ul style="list-style-type: none"> □ <i>UHN Construction and Design Guidelines - Product Specifications</i> □ <i>Green Guide for Health Care</i> □ <i>Leadership in Energy and Environmental Design (LEED) Standard</i> □ <i>Energy Standard for Buildings Except Low Rise Residential Buildings – ASHRAE 90.1, 2007</i> □ <i>Standard for the Performance of High Performance Green Buildings – ASHRAE 189.1 - 2009</i>

Department	Items for Consultation	Supporting Documents
<ul style="list-style-type: none"> <input type="checkbox"/> Infection Prevention and Control 	<ul style="list-style-type: none"> <input type="checkbox"/> sign-off on design & materials <input type="checkbox"/> consult IPAC on all sink standards and placement <input type="checkbox"/> review of water based architectural features (note: cost to maintain water features up to relevant standards to be incurred by department requesting water feature) 	<ul style="list-style-type: none"> <input type="checkbox"/> UHN Infection Control Standards <input type="checkbox"/> <i>Special Requirements for HVAC Systems in Health Care Facilities</i> - CSA Z317.2-01, 2008 <input type="checkbox"/> <i>HVAC Design Manual for Hospitals and Clinics</i> – ASHRAE, 2003 <input type="checkbox"/> <i>Guidelines for Design and Construction of Hospital and Health Care Facilities</i> – American Institute of Architects (AIA), 2010
<ul style="list-style-type: none"> <input type="checkbox"/> Occupational Health & Safety 	<ul style="list-style-type: none"> <input type="checkbox"/> adequate space to safely access and maintain equipment <input type="checkbox"/> ergonomic design <input type="checkbox"/> adequate ventilation <input type="checkbox"/> noise levels 	<ul style="list-style-type: none"> <input type="checkbox"/> <i>Special Requirements for HVAC Systems in Health Care Facilities</i> - CSA Z317.2-01, 2008; sections 6.1.1 and 6.6.2
<ul style="list-style-type: none"> <input type="checkbox"/> Medical Engineering 	<ul style="list-style-type: none"> <input type="checkbox"/> compatibility of equipment <input type="checkbox"/> equipment usability testing <input type="checkbox"/> see “Radiation Emitting Devices” section below 	
<ul style="list-style-type: none"> <input type="checkbox"/> SIMS 	<ul style="list-style-type: none"> <input type="checkbox"/> IT requirements 	
<ul style="list-style-type: none"> <input type="checkbox"/> Research 	<ul style="list-style-type: none"> <input type="checkbox"/> laboratory design requirements 	
<ul style="list-style-type: none"> <input type="checkbox"/> Workplace Diversity 	<ul style="list-style-type: none"> <input type="checkbox"/> accessibility requirements 	<ul style="list-style-type: none"> <input type="checkbox"/> Accessibility for Ontarians with Disabilities Act
□ Radiation Emitting Devices		
<ul style="list-style-type: none"> <input type="checkbox"/> Medical Engineering 	<ul style="list-style-type: none"> <input type="checkbox"/> x-ray rooms <input type="checkbox"/> other radiation rooms 	<ul style="list-style-type: none"> <input type="checkbox"/> UHN <i>Purchase and QC of X-ray Protective Shields</i> Guide
<ul style="list-style-type: none"> <input type="checkbox"/> X-ray Safety/Radiation Protection Office 	<ul style="list-style-type: none"> <input type="checkbox"/> x-ray rooms <input type="checkbox"/> other radiation rooms 	<ul style="list-style-type: none"> <input type="checkbox"/> UHN <i>Guide to Planning and Installing X-radiation Protective Shielding</i>
<ul style="list-style-type: none"> <input type="checkbox"/> Radiation Safety 	<ul style="list-style-type: none"> <input type="checkbox"/> other radiation rooms 	<ul style="list-style-type: none"> <input type="checkbox"/> UHN <i>Installation/Deinstallation Checklist</i> for radiation emitting devices <input type="checkbox"/> UHN <i>RED/HARP Equipment Acceptance Checklist</i> for radiation emitting devices

Department	Items for Consultation	Supporting Documents
Site Support Services		
<ul style="list-style-type: none"> ❑ Facility Management 	<ul style="list-style-type: none"> ❑ sign-off on design & material ❑ standardization of fixtures and materials ❑ ease of access for maintenance and repairs ❑ installation of rubber membrane in bathrooms and housekeeping closets prior to installing floor ❑ hot water recirculation lines to be included in all newly constructed spaces ❑ during any modifications to the Domestic Hot Water systems, ensure reconnection of the piping is made to the hot water recirculation loop and provide hot water at the user locations in twenty seconds or less ❑ spare quantity of supplies and materials 	<ul style="list-style-type: none"> ❑ <i>UHN Construction and Design Guidelines - Product Specifications</i>
<ul style="list-style-type: none"> ❑ Housekeeping 	<ul style="list-style-type: none"> ❑ sign-off on design & materials ❑ durable and easily cleaned materials ❑ use of Housekeeping standard for bins, brackets and dispensers ❑ spare capacity of supplies and materials 	<ul style="list-style-type: none"> ❑ <i>UHN Construction and Design Guidelines - Product Specifications</i>

3.0 PROJECT EXECUTION – Contractor Conduct

Department	Items for Consultation	Supporting Documents
Corporate Departments		
<ul style="list-style-type: none"> □ Space/Project Planning 	<ul style="list-style-type: none"> □ contractor competency 	Contractor Documentation Requirements
Facilities Risk		
<ul style="list-style-type: none"> □ Fire & Life Safety 	<ul style="list-style-type: none"> □ construction Fire Safety plan □ Fire Alarm System or Sprinkler verification requires minimum 48 hour notice to ensure that Site Fire Marshal and Facilities are aware and able to participate in all testing of systems □ 	
<ul style="list-style-type: none"> □ Security Operations 	<ul style="list-style-type: none"> □ contractor badges □ construction Security plan □ no smoking policy □ confirmation of exact location of security camera mounting 	<ul style="list-style-type: none"> □ UHN <i>Employee Photo Identification Cards</i> policy (1.60.007) □ UHN <i>Non-smoking</i> policy (1.60.005)
<ul style="list-style-type: none"> □ Radiation Safety 	<ul style="list-style-type: none"> □ procedures for construction in radioactive work areas □ approval for structural radiography 	<ul style="list-style-type: none"> □ UHN <i>Radiation Safety Guidelines for Non-UHN Employees Servicing Imaging Equipment</i> policy (9.21.010) □ UHN <i>Maintenance in Radioactive Work Areas</i> policy (9.00.010) □ UHN <i>Security in Radioactive Work Areas</i> policy (9.00.008) □ UHN <i>Approval for Structural Radiography</i> policy (9.00.030) □ UHN <i>X-ray Safety – Access to X-ray Rooms for Facility Maintenance</i> policy (13.40.013)

Department	Items for Consultation	Supporting Documents
<ul style="list-style-type: none"> □ Energy & Environment 	<ul style="list-style-type: none"> □ waste disposal policies □ energy efficiency policies □ maximize source separation and recycling of construction and demolition waste □ safe disposal of hazardous materials, including recycling of mercury bearing thermostats, switches, etc. □ forward of MOE Waste manifests under UHN generator numbers to Manager of Energy & Environment 	<ul style="list-style-type: none"> □ UHN <i>Recycling and Disposal of Non-Hazardous Waste</i> policy (1.120.003) □ UHN <i>Disposal of Biomedical Waste</i> policy (1.120.005) □ UHN <i>Storage, Handling and Disposal of Chemicals</i> policy (1.120.006) □ UHN <i>Energy and Water Conservation</i> policy (1.120.009)
<ul style="list-style-type: none"> □ Infection Prevention and Control 	<ul style="list-style-type: none"> □ review/inspection of hoarding adjacent to or affecting clinical areas □ notification of mould and incidents that could lead to mould (e.g., flooding, etc) □ all construction zones shall be negatively pressured at all times during construction unless decided otherwise in consultation with Infection Prevention & Control, Facilities and the Project Manager □ all air returns and exhaust within a construction zone are to be sealed to prevent dust migration into occupied space 	<ul style="list-style-type: none"> □ UHN Infection Control Standards □ UHN <i>Assessing Ceiling Tiles</i> policy (4.70.004) □ <i>Infection Control Requirements during Construction and Renovation of Health Care Facilities - CSA Z317.13-07, 2007</i> □ <i>Mould Guidelines for the Canadian Construction Industry, Standard Construction, Document CCA 82, 2004, Canadian Construction Association</i> □ <i>Construction-related Nosocomial Infections in Patients in Health Care Facilities – CCDR (Canada Communicable Disease Report) Volume:2752 July 2001</i>
<ul style="list-style-type: none"> □ Occupational Health & Safety 	<ul style="list-style-type: none"> □ contractor safety requirements □ contractor WHMIS training and provision of MSDS □ contractor orientation □ asbestos locations within hospital, in consultation with the site Asbestos Management Program Manager 	<ul style="list-style-type: none"> □ <i>Safety Orientation for Construction Contractors and Consultants</i>
<ul style="list-style-type: none"> □ Medical Engineering 	<ul style="list-style-type: none"> □ N/A – consult to ensure that standard is current 	

Department	Items for Consultation	Supporting Documents
<input type="checkbox"/> SIMS	<input type="checkbox"/> N/A – consult to ensure that standard is current	
<input type="checkbox"/> Research	<input type="checkbox"/> N/A – consult to ensure that standard is current	
<input type="checkbox"/> Privacy	<input type="checkbox"/> respect the privacy and dignity of patients, employees, and all associated individuals	UHN <i>Privacy</i> policy (1.40.007)
<input type="checkbox"/> Shipping & Receiving	<input type="checkbox"/> permission from the Hospital Receiving Supervisor to place waste bins at the loading dock <input type="checkbox"/> parking in Receiving is not permitted – only to be used for loading and unloading <input type="checkbox"/> use of receiving equipment (e.g., carts, lifts, etc.) is by permission of receiving personnel only	
Site Support Services		
<input type="checkbox"/> all site services	<input type="checkbox"/> completion of Activity Permit by movers/contractors prior to any work being done and circulated to appropriate UHN departments by Project Manager	<input type="checkbox"/> UHN <i>Activity Permit</i>

Department	Items for Consultation	Supporting Documents
<ul style="list-style-type: none"> □ Facility Management 	<ul style="list-style-type: none"> □ advance notice/scheduling of shut downs □ TGH Facilities – elevator scheduling of vertical delivery for loads greater than 2000 pounds □ for medical air and vacuum, need to distinguish between oxygen, air, nitrous oxide and vacuum □ removal of redundant and obsolete systems □ labelling and colour coding of electrical components <ul style="list-style-type: none"> □ air handling units - blue □ plumbing - yellow □ red for sprinkler isolation valves - red □ medical air - white with red cross □ removal of all hazardous waste used during construction (i.e., not to be left in mechanical rooms or other parts of the hospital) □ TGH Facilities – completion of request form for any project work (i.e., not daily maintenance) to be done by TGH locksmiths □ TWH Facilities – all contractors working off-hours (weekends, holidays, after-hours, etc.) to inform Shift Engineer of type of work and location on a daily basis prior to starting work; contractors to notify Shift Engineer upon completion of daily work 	<ul style="list-style-type: none"> □ <i>Shut Down Request Procedure and Hospital System Shut Down Request Form</i> □ <i>TGH Facilities Electrical Labeling And Standards</i>
<ul style="list-style-type: none"> □ Housekeeping 	<ul style="list-style-type: none"> □ construction waste disposal □ contractor tidiness □ proper paint disposal and cleaning of brushes 	

4.0 PROJECT TURN-OVER

Department	Items for Consultation	Supporting Documents
Corporate Departments		
<input type="checkbox"/> Space/Project Planning	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Facilities Risk		
<input type="checkbox"/> Fire & Life Safety	<input type="checkbox"/> sign-off on finished work <input type="checkbox"/> evacuation plans <input type="checkbox"/> provision of instructions/maintenance regarding installation or changes to our fire alarm/suppression systems; Building Operator training for fire alarm/suppression systems	
<input type="checkbox"/> Security Operations	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Radiation Safety	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Energy & Environment	<input type="checkbox"/> sign-off on finished work <input type="checkbox"/> ensure systems of vacated spaces are adjusted appropriately (e.g., HVAC reprogramming for empty spaces, etc.)	
<input type="checkbox"/> Infection Prevention and Control	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Occupational Health & Safety	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Medical Engineering	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> SIMS	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Research	<input type="checkbox"/> sign-off on finished work	
<input type="checkbox"/> Radiation Protection Office	<input type="checkbox"/> sign-off on finished work	
Site Support Services		
<input type="checkbox"/> Facility Management	<input type="checkbox"/> sign-off on finished work <input type="checkbox"/> hand-over of manuals <input type="checkbox"/> commissioning	
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> sign-off on finished work <input type="checkbox"/> cleaning and maintenance instructions to be handed over <input type="checkbox"/> construction cleaning provided by contractor; disinfection floor cleaning/treating to be done by Housekeeping	

5.0 CONTACTS FOR CONSULTATION AND SIGN-OFF

Department	Contact (may assign designate)	Title
Corporate Departments		
<input type="checkbox"/> Space/Project Planning	<input type="checkbox"/> Nancy White	Director, Infrastructure Planning
<input type="checkbox"/> Facilities Risk		
<input type="checkbox"/> Fire & Life Safety	<input type="checkbox"/> John Chartrand <input type="checkbox"/> Ed Riley <input type="checkbox"/> Kylie Hartwick <input type="checkbox"/> Vito D'Amico	Fire Marshal, TGH/PMH Fire Marshal, TWH Fire Prevention Officer, PMH Fire Marshal, PMH
<input type="checkbox"/> Security Operations	<input type="checkbox"/> Todd Milne	Manager, Security Operations
<input type="checkbox"/> Radiation Safety	<input type="checkbox"/> Frank Tourneur	Director, Radiation Safety
<input type="checkbox"/> Energy & Environment	<input type="checkbox"/> Ed Rubinstein	Manager, Energy & Environment
<input type="checkbox"/> Infection Prevention and Control	<input type="checkbox"/> Jayvee Guerrero	Practice Leader, Prevention and Control
<input type="checkbox"/> Occupational Health & Safety	<input type="checkbox"/> Richard Bilan – general health and safety items <input type="checkbox"/> Tony Letterio – construction health safety items	Senior Manager, Safety Services, Occupational Health & Safety Occupational Health & Safety
<input type="checkbox"/> Medical Engineering	<input type="checkbox"/> TBD	
<input type="checkbox"/> SIMS	<input type="checkbox"/> Dave Eagan	Manager, Service Support
<input type="checkbox"/> Research	<input type="checkbox"/> Ian McDermott	Director, Research Facilities Planning
<input type="checkbox"/> Radiation Protection Office	<input type="checkbox"/> Judy Reid	Radiation Protection Technologist
<input type="checkbox"/> Workplace Diversity	<input type="checkbox"/> Jacqueline Silvera	Manager, Workplace Diversity
Site Support Services		
<input type="checkbox"/> Facility Management	<input type="checkbox"/> TGH – Mirek Balcy <input type="checkbox"/> TWH – Doug Shiozaki <input type="checkbox"/> TWH – Isaac Prashad	Director, Facilities & Support Services, TGH Director, Facilities & Support Services, TWH Manager, Facility Management Services, TWH
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> PMH – Ron Beauchesne <input type="checkbox"/> TGH – Rita Soares <input type="checkbox"/> TWH – Doug Shiozaki <input type="checkbox"/> PMH – Ramsay Mckee	Manager, Facilities, PMH Manager, Housekeeping, TGH Director, Facilities & Support Services, TWH Manager, Housekeeping, PMH