



FULL LIST OF SERVICES FOR CCP ENGINEERING INC. – REV JAN.1, 2022

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Industrial Safety

➤ **Fire Safety:**

- **Area classifications** of flammable and/or combustible liquids, vapours and dusts for Electrical Code compliance using NFPA, FM Global and other standards.
- **Fire Code audits** against National and Provincial Fire Codes, NFPA Standards such as NFPA 101, applicable sections of Provincial Building Codes, and best practices.
- **Fire Safety Plans** (facility, equipment or operation specific).
- Design and code compliance consulting for **Flammable & combustible storage & dispensing facilities and other rooms** requiring special provisions (eg. compressed flammable gas, laboratories, aerosol filling, etc.).
- Pre-Start Health & Safety Review for **Flammable Liquid Storage & Dispensing** applications (trigger 1 of the Table in S.7 of Ontario Regulation 851).
- Pre-Start Health & Safety Review for any 'Process That Involves The **Risk Of Ignition Or Explosion**' (trigger 4 of the Table in S.7 of Ontario Regulation 851).
- Pre-Start Health & Safety Review for **Dust Collectors** (trigger 5 of the Table in S.7 of Ontario Regulation 851).
- **Finite element analysis of vessels** to determine their resistance as a prelude to the installation of an explosion protection system; and **designs to reinforce** those vessels where required.
- **Dust Hazard Analysis** of whole facilities in accordance with NFPA 652.
- Design of **Dust Control Systems**.
- Design and specification of **Fire Protection Systems**.

➤ **Machinery:**

- Pre-Start Health & Safety Review for **Machine Guarding** applications (trigger 2 of the Table in S.7 of Ontario Regulation 851)
- **Custom machine guarding design & fabrication** (perimeter fencing or 'form-fitting' sheet metal / Lexan / wiremesh guards).
- **Specialized machine guarding design** (eg. impact/shock absorbing).
- **Electrical safety circuit design** for control reliability
- **Pneumatic / hydraulic circuit design** for control reliability
- Safe distance and machine **stop time analysis**.
- **Press Control Design** (Mechanical - Hydraulic).
- Responses to **Ministry of Labour orders** such as "54(1)K," and "54(1)L," orders, which require a Certificate of "Not Likely to Endanger" before the machine can operate again.
- **Mechanical Design & Engineering**.
- **Turnkey safety integration** projects, where CCP Engineering can design, supply, manage and sign-off on the safety upgrade project.
- Safety Integrity Level (**SIL**) **Assessment** per EN62061, ISA 84.01 and IEC 61511 standards.
- Performance Level (**PL**) **Assessment** per ISO 13849-1.





- Pre-Start Health & Safety Review for **Lifting Devices** And Automotive Lifts (trigger 7 of the Table in S.7 of Ontario Regulation 851)
- **Lockout / tagout** review, including the evaluation of equipment and generation of procedures to meet the requirements of CSA Z460
- Structural analysis of **cranes** and **lifting devices**.
- **Laser Safety** Reviews per CAN/CSA E60825-1, CSA Z386 and CAN/CSA-C22.2 NO. 60601-2-22-01.

- **Processes:**
 - Pre-Start Health & Safety Review for **Foundries** (trigger 6 of the Table in S.7 of Ontario Regulation 851)
 - **Warehouse** safety including: forklift, fire protection, dock safety, racking damage assessment and good practices
 - **Workwell audits**
 - **Ergonomic analysis** to increase productivity and improve occupational health and safety.
 - **Noise measurement & audit** per O.Reg. 381/15, CSA-Z107.56 and Worksafe BC methods.
 - **Ventilation studies** including:
 - Dilution Ventilation Design
 - Heating, Ventilation & Air Conditioning,
 - Heat Loss Calculations,
 - Duct Design,
 - Fume Extraction Systems,
 - Air Compressors and Dryers.
 - **HAZOP¹**, Risk Analysis. Feasibility Study, Compliance & Risk Engineering

Construction Safety

- **Construction Safety**, including:
 - Detailed work procedures and instructions in compliance with OHS.A.
 - Safety policy manuals.
 - Engineered repair procedures.
 - Safe welding procedures and practices.
 - Site inspection and site safety administration.
 - Worker-pedestrian and motorized vehicle awareness training: worker-vehicle interaction, increased "people" awareness, workplace specific examples, rigging and hoisting practice, slings and rigging inspection, and lift equipment inspection.
 - Inspection and preparation of repair procedures for construction equipment such as backhoes, skid steers, scrapers, bulldozers, concrete pumps, piling rigs, etc.
 - Crane operations, engineered lifts, rigging, hoisting and associated material handling including safe crane operations.
- **Safety audits** for construction machinery, including:
 - Tunnel boring machines,
 - Mobile Cranes,
 - Mining vehicles,
 - Aerial devices,
 - Elevating work platforms,

¹ Utilizing software packages such as PHA/Pro



- Mast climbers,
- Tower Cranes
- **Tower Crane** mechanical & electrical inspections. *Note: the Ministry of Labour in Ontario has placed a great deal of emphasis on the requirement for mechanical & electrical inspection (not just structural).*

General

- Development of **Purchasing Specifications** to ensure that safety is built into the design phase or that the responsibility for safety and compliance are shifted to the equipment supplier.
- **Forensic Engineering & Litigation Support** services, including:
 - Accident investigation and failure analysis for industrial, construction and mining accidents
 - Fire and explosion investigations
 - Accident reconstruction and computer animation of accidents
 - Litigation support
 - Expert witness services in court
 - Field testing of control systems on machinery, vehicles, etc.
 - In-house facilities to carry out strength testing, slip testing, hardness testing, and other mechanical tests.
 - Collaborations with metallurgical testing facilities
- **Structural Analysis / Finite Element Analysis**², including:
 - Static / dynamic / thermal stress analysis
 - Linear and non-linear analysis
 - Mechanical event simulation
- **Training** on-site or off-site in all aspects of safety and legal issues in relation to industrial establishments and construction projects.
- **Health & Safety Programs** (manuals, training, monitoring). Integration of Safety Information into Manuals.
- **Accident/Incident Investigations & Training.**
- **CAD and Solid Modeling** of parts, assemblies and bill of materials; for machines, mechanical equipment, piping layouts and ducting layouts.
- 3D scanning and modeling using the technique of **Photogrammetry**
- **Confined Space** assessment and development of entry requirements.
- Special Access **Elevating Devices**³, with services including:
 - Engineering design analysis
 - Control circuit reviews for safety
 - Design permit application support
 - Field reviews for applicable Code compliance
 - Field physical testing
 - Final commissioning reviews
 - Material hoist reviews

² Utilizing software packages such as Solidworks Simulation

³ Please note that these are not commercial 'Elevators', which are covered entirely by TSSA, but rather specialized types that require variance applications to the Regulatory Authorities.