FULL LIST OF SERVICES FOR CCP ENGINEERING INC. – REV OCT.24, 2013
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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 construction management for **Flammable 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)
  - 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 (perimeter fencing or ‘form-fitting’ sheet metal / Lexan / wiremesh guards)
  - **Electrical** safety circuit design for control reliability
  - PLC programming, especially relating to safety circuits (safety PLC’s and programmable safety relays).
  - **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.**
  - Hazard warning **labels**.
  - Turnkey safety integration projects, where CCP Engineering can design, supply, manage and sign-off on the safety upgrade project.

- **Equipment** (other than machinery):
  - Pre-Start Health & Safety Review for **Lifting Devices** And Automotive Lifts (trigger 7 of the Table in S.7 of Ontario Regulation 851)
- Pre-Start Health & Safety Review for **Racking Systems** (trigger 3 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**.

**Processes:**
- Pre-Start Health & Safety Review for **Foundries** (trigger 6 of the Table in S.7 of Ontario Regulation 851)
- Pre-Start Health & Safety Review for **Industrial Hygiene** (trigger 8 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.
- **Industrial hygiene and noise audits**.
- **Ventilation studies** including:
  - Dilution Ventilation Design
  - Heating, Ventilation & Air Conditioning,
  - Heat Loss Calculations,
  - Duct Design,
  - Fume Extraction Systems,
  - Air Compressors and Dryers.

**Construction Safety**

- **Construction Safety**, including:
  - Detailed work procedures and instructions in compliance with OHSA.
  - Safety policy manuals.
  - Engineered repair procedures.
  - Safe welding procedures and practices.
  - Site inspection and site safety administration.
  - Mechanical access equipment including mast climbing work platforms,
  - 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.
  - Certification of truck-mounted aerial devices, elevating work platforms, tower, mobile and overhead cranes, forklifts and mast climbers.
  - Design and certification of fall arrest, rigging systems, anchorage connections and static lines.
  - Design and analysis of ladder systems.
  - Equipment inspection and non-destructive testing.
  - 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,
- 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**¹, 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.
- **JHSC setup** and coaching.
- **Accident/Incident Investigations** & Training.
- **WHMIS** training and development.
- **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**
- **Project Management** including Budget Estimates, Critical Path Scheduling, Procurement, Specifications, Tender Administration, Contractor Selection, Progress Payments, Project Documentation, Filing for Various Permits.
- **Construction Management** including Site Management, Procurement, Specifications Adherence, Contractor Co-ordination, Quality Assurance, Schedule Adherence.
- **Confined Space** assessment and development of entry requirements.
- **Crane and Elevating Work Platform** Inspection & Engineering, including:

¹ Utilizing software packages such as Solidworks Simulation
- Code compliance testing & certification
- Annual inspection
- Repair procedures
- Load chart certification
- Special Access **Elevating Devices**\(^2\), 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
- **Fall Protection System** Design & Engineering
  - Complete custom design of fall protection systems including fall arrest, fall restraint, travel restraint, etc. for a wide range of applications.
  - Full turnkey services including design and installation by experienced professionals.
  - Peer reviews of existing systems designed and installed by others.
  - Prepare procedures for operating, maintenance, fall protection, and confined space.
  - Annual inspection and load testing of fall arrest and fall protection systems. Non-destructive testing and re-certification.
- **HAZOP**\(^3\), Risk Analysis. Feasibility Study, Compliance & Risk Engineering
- Safety Integrity Level (SIL) **Assessment** per EN62061, ISA 84.01 and IEC 61511 standards.
- Performance Level (PL) **Assessment** per ISO 13849-1.

\(^2\) 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.

\(^3\) Utilizing software packages such as PHA/Pro