



ONTARIO COLLEGE OF TRADES

ORDRE DES MÉTIERS DE L'ONTARIO

Apprenticeship
Training Standard

Ironworker -
Structural and
Ornamental

Trade Code: 420A

Development Date: 2013

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SKILL SETS

SKILLS

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	Post heat materials U0894.06	Bend materials U0894.07	Expand materials U0894.08	Clean materials U0894.09	Maintain and store oxy-fuel equipment U0894.10

SKILL SETS

SKILLS

FABRICATE AND INSTALL ORNAMENTAL FERROUS AND NON-FERROUS COMPONENTS U0899.0	Fabricate stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron	Install stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron	Fit floor plate and grating	Install floor plate and grating	Install doors, frames, attachments and components
	U0899.01	U0899.02	U0899.03	U0899.04	U0899.05
	Load, unload, store and install finished materials	Finish materials	Install covers, cladding fascia and related components	Install shelving and racks	Install extruded and expanded metals and composite materials
U0899.06	U0899.07	U0899.08	U0899.09	U0899.10	
Install fencing					
U0899.11					

INSTALL, MOVE AND MAINTAIN MACHINERY AND EQUIPMENT U0900.0	Layout and set anchors	Install falsework and shoring	Assemble machinery components	Rig machinery	Stage machinery
	U0900.01	U0900.02	U0900.03	U0900.04	U0900.05
	Transport machinery	Assemble and place machinery	Align and balance machinery	Adjust machinery components	Maintain and troubleshoot machinery
U0900.06	U0900.07	U0900.08	U0900.09	U0900.10	
Dismantle machinery					
U0900.11					

SKILL SETS

SKILLS

INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS U0901.0	Load, unload and store finished curtain wall and window wall materials U0901.01	Select rigging, hoisting and staging equipment U0901.02	Assemble rigging, hoisting and staging equipment U0901.03	Assemble curtain wall sections and components U0901.04	Level and align curtain wall, window wall sections and components U0901.05
	Apply specified adhesives, sealants, gaskets, insulating materials, vapour barriers and air U0901.06	Install glass and thermo-pane units U0901.07	Install panel units U0901.08	Install window-wall unitS U0901.09	Install miscellaneous glass systems U0901.10
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INSTALL, MOVE AND MAINTAIN MATERIAL HANDLING AND ROBOTIC EQUIPMENT U0902.0	Plan installation of material handling systems and equipment U0902.01	Select components U0902.02	Layout anchorages U0902.03	Fabricate supports U0902.4	Install supports U0902.05
	Install material handling systems and equipment U0902.06	Assemble components U0902.07	Level and align components U0902.08	Fabricate guards, protective barriers and devices U0902.09	Install guards, protective barriers and devices U0902.10
	Start up and troubleshoot material handling systems U0902.11	Maintain material handling systems U0902.12	Decommission material handling systems U0902.13	Disassemble material handling and robotic components U0902.14	

PREFACE

This Training Standard was developed by the Ministry of Training, Colleges, and Universities (MTCU), in partnership with the Provincial Advisory Committee and in consultation with representatives from the industry. This document is intended to be used by apprentice, supervisor/trainer and sponsor/employer as a "blueprint" for training and as a prerequisite for completion and certification.

This training document becomes the apprentice's only record of workplace training performance.

Supervisor/trainer and apprentice are required to sign off and date the skill following each successful acquisition, unless a skill is shaded (optional).

The care and maintenance of this training document is the joint responsibility of the apprentice and the sponsor/employer. By signing off the skill, the supervisor/trainer and the apprentice are indicating that the apprentice has demonstrated competence in the skill. This training standard has been developed specifically for documenting the apprentice's acquisition of skills in the trade.

The technical and work processes that this apprenticeship program occupation/trade performs have been reviewed to include requirements for emerging "green" technologies, managing surplus, or scrap materials, conservation and preventing spills or escape of contaminated, toxic or hazardous gases and waste.

As apprenticeable trades and occupations are more mindful of the need for environmental sustainability, they are adopting materials, tools and procedures that offer environmental harm reduction.

Please Note:

Apprenticeship Training and Curriculum Standards were developed by the Ministry of Training, Colleges and Universities (MTCU). As of April 8th, 2013, the Ontario College of Trades (College) has become responsible for the development and maintenance of these standards. The College is carrying over existing standards without any changes.

However, because the Apprenticeship Training and Curriculum Standards documents were developed under either the *Trades Qualification and Apprenticeship Act* (TQAA) or the *Apprenticeship and Certification Act, 1998* (ACA), the definitions contained in these documents may no longer be accurate and may not be reflective of the *Ontario College of Trades and Apprenticeship Act, 2009* (OCTAA) as the new trades legislation in the province. The College will update these definitions in the future.

Meanwhile, please refer to the College's website (www.collegeoftrades.ca) for the most accurate and up-to-date information about the College. For information on OCTAA and its regulations, please visit: www.collegeoftrades.ca/about/legislation-and-regulations.

DEFINITIONS

ACA

Apprenticeship and Certification Act, 1998

Certificate of Apprenticeship (C of A)

Certification issued to individuals who have demonstrated that they have completed the trade or occupation in-school training and on-the-job training.

Certificate of Qualification (C of Q)

Certification issued to qualified applicants who have achieved a passing grade on the certification examination for their trade.

Competency Analysis Profile

A document that identifies, in compressed, graphic format, the training requirements of an individual trade and that details the skills/skill sets that must be demonstrated.

Competence

The ability of an individual to perform a skill repeatedly and without assistance in the workplace to the standard set out in the Training Standard or Schedule of Training.

General Performance Objective (On-the-job Skill Set)

Describes the skill set, including all performance objectives under that skill set.

Industry Committee (IC) - under the ACA and Provincial Advisory Committee (PAC) under the TQAA

Under the ACA and TQAA, the Minister may appoint a provincial committee in any trade or group of trades to advise the Minister in matters relating to the establishment and operation of apprenticeship training programs and trades qualifications.

Journeyman or Equivalent

A person who has acquired the knowledge and skills in a trade, occupation or craft as attested to by a provincial or territorial authority.

Mandatory

Status assigned to unshaded individual skills, skill sets or general performance objective which must be signed off for apprentices to complete their program.

Optional

Status assigned to shaded individual skills, skills sets or general performance objective for which sign-off is not required for apprentices to complete their program.

Sign-off

Signature of the sponsor/employer of record or an individual to whom, that sponsor or employer has delegated signing authority, indicating an apprentice’s achievement of competence.

Skill

Individual skill described in the Training Standard (note: does not mean the larger skill groups referred to in the Training Standard as Skill Sets, Training Units, or General Performance Objective, but the individual skills that make up those groups).

Skill Sets

Group of individual skills found in the Training Standard (may also be called Training Unit or General Performance Objective)

Skill Set Completion Form

Lists all skill sets and includes space for sign-off by sponsor/employer of record.

Sponsor/Employer

Means a person that has entered into a registered training agreement under which the person is required to ensure that an apprentice is provided with workplace-based training in a trade, other occupation or skill set as part of an apprenticeship program approved by the Director.

Sponsor/Employer of Record

Refers to the sponsor or employer documented as the signatory to the current training agreement or contract. In order for sponsors/employers to be considered for the training of apprentices, they must identify that the workplace has qualified journeypersons or equivalent on site and can identify that the workplace has the tools, equipment, materials, and processes which have been identified to be required for the trade by Provincial Advisory Committees (PACs) or Industry Committees (ICs).

Supervisor

An individual, who oversees the execution of a task or oversees the actions or work of others.

Trainer

A qualified trainer in a compulsory trade is a journeyperson with a Certificate of Qualification or in a voluntary trade is an individual who, at a minimum, is considered equivalent to a journeyperson with a Certificate of Qualification.

TQAA

Trades Qualification and Apprenticeship Act.

Training Standard

A document that has been written in concise statements, which describe how well an apprentice must perform each skill in order to become competent. In using the document, trainers will be able to ensure that the apprentice is developing skills detailed for the occupation.

IMPORTANT DIRECTIONS

Apprentice

1. All complete skills or skill sets must be signed and dated by both the apprentice and sponsor/employer when either all terms of the contract have been completed or the apprentice leaves the employ of the employer.
2. It is the responsibility of the apprentice to inform the local Apprenticeship Client Services Office regarding the following changes:
 - change of sponsor/employer address
 - change of apprentice name or address
 - transfer to a new sponsor/employer
3. The Skill Set Completion Form must be completed and signed by the current sponsor/employer and presented to the local Apprenticeship Client Services Office at the fulfillment of all terms of a Contract of Apprenticeship/Training Agreement.
4. The apprentice completion form with the Completed and Authorized Training Standard must be presented to the local Apprenticeship Client Services Unit.

Sponsors/Employers and Supervisors/Trainers

The Training Standard identifies skills required for this trade/occupation and its related training program.

This Training Standard has been written in concise statements which describe how an apprentice must perform each skill in order to become competent.

In using this Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing the skills detailed for the trade/occupation.

Supervisors/Trainers and apprentices are required to sign off and date the skills following successful acquisition.

Sponsors/Employers participating in this training program will be designated as the Signing Authority and are required to attest to successful completion by signing the appropriate box included at the end of each skill set.

NOTICE/DECLARATION FOR COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this Training Standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario's apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.
2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.
3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.
4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
TTY: 1-866-533-6339 or 416-325-4084.

ROLES & RESPONSIBILITIES OF APPRENTICE, SPONSOR/EMPLOYER AND SUPERVISOR/TRAINER

Apprentice “Apprenticeship is learning on the job”

- Practice safe work habits.
- Use your apprenticeship Training Standard as a journal to keep track of which skills you have achieved.
- Talk over your training plan with your Training Consultant, Employer, Union, or Sponsor.
- Know what tools are required for your trade and how to use them.
- Ask questions and keep asking.
- Talk to your employer about your training needs.
- Demonstrate enthusiasm and good work habits.
- Ensure that you and your supervisor/trainer sign off skill/skill sets upon demonstration of competency.

Sponsor/Employer “Training is an Investment”

- Demonstrate safe work habits.
- Attest to successful achievement by signing the skill/skills sets.
- Provide opportunities and time for the apprentice to learn the trade.
- Offer practical trade training experiences that cover all of the skill sets.
- Foster work ethics that support training while minimizing productivity losses.
- Set out clear expectations, then recognize or reward performance excellence.
- Involve both the apprentice and supervisor/trainer in developing the training plan.
- Use the Training Standard as a monitoring tool and part of regular performance evaluations.
- Select supervisors/trainers with good communication skills and who work well with others.
- Encourage supervisors/trainers to take upgrading courses - (e.g. Train the Trainer, Mentor Coach, etc).
- Complete the Skill Set Completion Form once the apprentice has demonstrated competency in the training.
- Ensure that the apprentice always works under the direction of or has access to a qualified supervisor/trainer.
- Vary the apprentice’s exposure to all the skills set out in the training standard.

Supervisor/Trainer

- Demonstrate safe work habits.
- Treat apprentices fairly and with respect.
- Use the Training Standard as a guide to evaluating competence in each skill area. In using the Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing skills detailed for the trade/occupation.
- Review the Training Standard with the apprentice and develop a training plan.
- Respond fully to all questions.
- Be patient. Explain what is to be done, then show how it is done, and then let the apprentice demonstrate the task.
- Provide continuous feedback.
- Sign off individual skills/skill sets once the apprentice demonstrates competence in the skill.

Suggestions for Assessing the Progress of the Apprentice in the Workplace

- Use informal daily observation.
- Provide constructive feedback to build confidence.
- Allow the supervisor/trainer time to teach and demonstrate the skills.
- Take prompt action wherever problems occur.
- Conduct regular performance reviews involving the apprentice, supervisor/trainer and sponsor/employer.
- Use the Training Standard as the reference for establishing the competency of the apprentice.

SKILL SET COMPLETION FORM

SKILL SET	TITLE	SIGNING AUTHORITY
U0891.0	PROTECT SELF AND OTHERS	
U0892.0	PLAN, PREPARE AND SET UP JOB	
U0893.0	OPERATE AND MAINTAIN HAND AND POWER TOOLS	
U0894.0	USE AND MAINTAIN TORCH	
U0895.0	WELD FERROUS AND NON-FERROUS MATERIALS	
U0896.0	RIG AND HOIST EQUIPMENT AND COMPONENTS	
U0897.0	ERECT STRUCTURAL MEMBERS	
U0898.0	INSTALL FASTENERS	
U0899.0	INSTALL AND FABRICATE ORNAMENTAL FERROUS AND NON-FERROUS COMPONENTS	
U0900.0	INSTALL, MOVE AND MAINTAIN MACHINERY	
U0901.0	INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS	
U0902.0	INSTALL, MOVE AND MAINTAIN MATERIAL HANDLING AND ROBOTIC EQUIPMENT	
U0903.0	ERECT AND DISMANTLE CRANES	

NOTE ON SHADED PERFORMANCE OBJECTIVES AND SKILLS:

- Shaded performance objectives and skill sets are optional. The shaded skills do not have to be demonstrated or signed-off for completion of the on-the-job component of the apprenticeship
- The in-school curriculum learning outcomes will cover all of the skill sets, both shaded and unshaded.
- The Certificate of Qualification examination will test the whole of the trade and may test both shaded and unshaded performance skill sets.

U0891.0 PROTECT SELF AND OTHERS

GENERAL PERFORMANCE OBJECTIVE

Protect self and others by: wearing personal protective equipment (PPE; lifting equipment and materials; applying housekeeping rules; interpreting warning signs, labels and symbols; reporting hazards to supervisory and safety personnel; maintaining safety devices and equipment; responding to emergency situations; operating construction equipment; inspecting platforms and working surfaces; installing and securing platforms, ladders and working surfaces; preventing fires; and communicating with co-workers in the workplace

PERFORMANCE OBJECTIVES

SKILLS

U0891.01 **Wear personal protective equipment (PPE)**, including safety vests, head, ear, eye, hand, foot and respiratory protection, according to the *Occupational Health and Safety Act (OHSA)* and company policies, in order to ensure fit and optimum protection of self and others.

Date Completed

Apprentice

Supervisor/Trainer

U0891.02 **Lift equipment and materials**, manually, using posture and lifting techniques, in order to move material and equipment in a safe and efficient manner and to prevent personal injury.

Date Completed

Apprentice

Supervisor/Trainer

U0891.03 **Apply housekeeping rules**, by removing all obstacles and impediments, in order to maintain a safe work area.

Date Completed

Apprentice

Supervisor/Trainer

U0891.0 PROTECT SELF AND OTHERS ...cont'd

U0891.04 Interpret warning signs, labels and symbols, by inspecting the work area regularly, according to the *Workplace Hazardous Materials Information System (WHIMS)* and company policies, in order to ensure fit and optimum protection to self and others.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0891.05 Report hazards to supervisory and safety personnel, promptly and correctly, in order to prevent injury to self and others.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0891.06 Maintain safety devices and equipment, by inspecting, adjusting and maintaining regularly and providing care, according to manufacturer’s specifications, in order to ensure safe and efficient operation and to protect self and others from injury.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0891.07 Respond to emergency situations, by identifying the danger, notifying others and taking initial corrective action, according to the *OHSA*, company procedures and the Infrastructure Health & Safety Association: Construction Health and Safety Manual, in order to prevent injury to self and others.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0891.08 Operate construction equipment, by inspecting and maintaining regularly, according to the *OHSA*, manufacturer’s instructions and established industry practices, in order to protect self and others from injury.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0891.0 PROTECT SELF AND OTHERS ...cont'd

U0891.09 Inspect platforms, ladders and working surfaces, regularly, according to the *OHSA* and manufacturer's specifications, in order ensure safe work area and to prevent injury to self and others.

Date Completed

Apprentice

Supervisor/Trainer

U0891.10 Install and secure platforms, ladders and working surfaces, ensuring that power elevated working platforms are certified for use and operators are certified, inspecting and maintaining regularly, according to the *OHSA* and manufacturer's specifications, in order to protect self and others from injury.

Date Completed

Apprentice

Supervisor/Trainer

U0891.11 Prevent fires, by inspecting the work area, identifying hazards, obtaining required permits and fire extinguishing equipment and using barriers, blankets and a fire watch assistant, in order to prevent injury to self and others.

Date Completed

Apprentice

Supervisor/Trainer

U0891.12 Communicate with co-workers in the workplace, at all times, warning co-workers of hazards or potential hazards, in order to ensure safe workplace and to prevent injury to self and others.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0892.0 PLAN, PREPARE AND SET UP FOR JOB

GENERAL PERFORMANCE OBJECTIVE

Plan, prepare and set up for job by: reading and interpreting drawings and specifications; planning tasks; determining installation procedures and sequences; installing and removing falsework; setting up equipment; unloading, sorting/shaking out and staging inventory materials; and preparing materials for installation.

PERFORMANCE OBJECTIVES

SKILLS

U0892.01 Read and interpret drawings and specifications, including structural, mechanical, architectural, ornamental, fabrication, placing, bar list, tendon profile and welding blueprints, diagrams, sections, details and specific procedures, before commencing task operations, in order to identify tasks to be performed and to determine required assembly, installation and erection materials and sequence.

Date Completed

Apprentice

Supervisor/Trainer

U0892.02 Plan tasks, by preparing and scheduling tasks and determining required personnel, materials and equipment, according to drawings and specifications, to ensure safe and efficient performance of the tasks.

Date Completed

Apprentice

Supervisor/Trainer

U0892.03 Determine installation procedures and sequences, by conducting pre-installation task analyses to confirm anchorage orientation and projection, alignment, benchmarks, availability of materials for installation, site conditions and access, available personnel and equipment, in order to ensure safe and efficient installation.

Date Completed

Apprentice

Supervisor/Trainer

U0892.0 PLAN, PREPARE AND SET UP FOR JOB...cont'd

U0892.04 Install and remove falsework, by using erection procedures and sequences, according to drawings and specifications, in order to complete installation and removal in a safe and efficient manner.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0892.05 Set up equipment, using space, materials and personnel, in order to ensure timely commencement of task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0892.06 Unload, sort/shake out and stage inventory materials, as required, in order to prepare for timely, safe and efficient assembly, installation and erection.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0892.07 Prepare materials for installation, by cleaning, straightening, welding, cutting, drilling, grinding, positioning, painting, match-marking and attaching sub-assemblies, according to drawings and specifications, in order to ensure safe and efficient installation.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0893.0 OPERATE AND MAINTAIN HAND AND POWER TOOLS

GENERAL PERFORMANCE OBJECTIVE

Operate and maintain hand and power tools by: identifying hand tools; selecting hand tools; using hand tools; maintaining hand tools; identifying power tools; selecting power tools; operating power tools; maintaining power tools; identifying powder actuated tools and accessories; selecting powder actuated tools and accessories; operating powder actuated tools and accessories; maintaining powder actuated tools and accessories; identifying alignment, levelling and measuring tools; selecting alignment, levelling and measuring tools; using alignment, levelling and measuring tools; and maintaining alignment, levelling and measuring tools

PERFORMANCE OBJECTIVES

SKILLS

U0893.01 Identify hand tools, including bolt cutters, pliers, side cutters, wire reels, box cutters, measuring tapes, ratchets, erection wrenches, bull pins, hammers, sockets, pry bars, punches, marking tools, plumb-bobs, clamps, hacksaws, squares, levels, strikers, screwdrivers and chalk-lines, in order to ensure safe and efficient task performance.

Date Completed

Apprentice

Supervisor/Trainer

U0893.02 Select hand tools, including bolt cutters, pliers, side cutters, wire reels, box cutters, measuring tapes, ratchets, erection wrenches, bull pins, hammers, sockets, pry bars, punches, marking tools, plumb-bobs, clamps, hacksaws, squares, levels, strikers, screwdrivers and chalk-lines, according to manufacturer’s drawings and specifications, in order to ensure safe and efficient task performance.

Date Completed

Apprentice

Supervisor/Trainer

U0893.0 OPERATE AND MAINTAIN HAND AND POWER TOOLS ...cont'd

U0893.03 Use hand tools, including bolt cutters, pliers, side cutters, wire reels, box cutters, measuring tapes, ratchets, erection wrenches, bull pins, hammers, sockets, pry bars, punches, marking tools, plumb-bobs, clamps, hacksaws, squares, levels, strikers, screwdrivers and chalk-lines, according to manufacturer’s drawings and specifications, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.04 Maintain hand tools, including bolt cutters, pliers, side cutters, wire reels, box cutters, measuring tapes, ratchets, erection wrenches, bull pins, hammers, sockets, pry bars, punches, marking tools, plumb-bobs, clamps, hacksaws, squares, levels, strikers, screwdrivers and chalk-lines, according to manufacturer’s drawings and specifications, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.05 Identify power tools, including shears, electric drills, hammer-drills, quick cut saws, electric or pneumatic impact wrenches, impacting tools, grinders, power saws, hydraulic jacks, compressors, hydraulic multiplying bolt tensioners, and air handling tools, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.06 Select power tools, including shears, electric drills, hammer-drills, quick cut saws, electric or pneumatic impact wrenches, impacting tools, grinders, power saws, hydraulic jacks, compressors, hydraulic multiplying bolt tensioners, and air handling tools, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.0 OPERATE AND MAINTAIN HAND AND POWER TOOLS ...cont'd

U0893.07 Operate power tools, including shears, electric drills, hammer-drills, quick cut saws, electric or pneumatic impact wrenches, impacting tools, grinders, power saws, hydraulic jacks, compressors, hydraulic multiplying bolt tensioners, and air handling tools, according to manufacturer's drawings and specifications, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.08 Maintain power tools, including shears, electric drills, hammer-drills, quick cut saws, electric or pneumatic impact wrenches, impacting tools, grinders, power saws, hydraulic jacks, compressors, hydraulic multiplying bolt tensioners, and air handling tools, according to manufacturer's drawings and specifications, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.09 Identify powder actuated tools and accessories, according to the *OHS*A and manufacturer's instructions, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.10 Select powder actuated tools and accessories, according to the *OHS*A and manufacturer's instructions, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.11 Operate powder actuated tools and accessories, according to the *OHS*A and manufacturer's instructions, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0893.0 OPERATE AND MAINTAIN HAND AND POWER TOOLS ...cont'd

U0893.16 Maintain alignment, levelling and measuring tools, including spirit levels, optical levels, transits, digital theodolites, total stations, lasers, micrometers, vernier callipers and feeler gauges, according to manufacturer's instructions, in order to complete installations and to achieve required fit, alignment and tolerances.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0894.0 OPERATE AND MAINTAIN OXY-FUEL EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Operate and maintain oxy-fuel equipment by: selecting oxy-fuel equipment; setting up and testing oxy-fuel equipment; adjusting oxy-fuel equipment; performing accurate cuts; pre-heating materials; post heating materials ; bending materials; expanding materials; cleaning materials; and maintaining and storing oxy-fuel equipment.

PERFORMANCE OBJECTIVES

SKILLS

U0894.01 **Select oxy-fuel equipment**, including tip type and size with matching fuel gas and assembly, according to manufacturer’s instructions, in order to ensure safe operation of the oxy-fuel equipment.

Date Completed

Apprentice

Supervisor/Trainer

U0894.02 **Set up and test oxy-fuel equipment**, including assembling, securing and testing components for leaks, according to manufacturer’s instructions, in order to ensure safe operation of the oxy-fuel equipment.

Date Completed

Apprentice

Supervisor/Trainer

U0894.03 **Adjust oxy-fuel equipment**, including the working pressure and torch valves to achieve neutral, oxidizing and carburizing flames, according to manufacturer’s instructions, in order to ensure safe and efficient operation.

Date Completed

Apprentice

Supervisor/Trainer

U0894.0 OPERATE AND MAINTAIN OXY-FUEL EQUIPMENT...cont'd

U0894.04 Perform accurate cuts, using oxy-fuel equipment, according to manufacturer’s instructions, in order to produce work pieces with a clean surface, free from excessive slag, to achieve proper fit.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0894.05 Pre-heat materials, using oxy-fuel equipment and conditioning them for welding, according to drawings and specifications, in order to relieve stresses and prevent cracking.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0894.06 Post heat materials, using oxy-fuel equipment, according to drawings and specifications, in order to relieve stresses and prevent cracking.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0894.07 Bend materials, using oxy-fuel equipment, according to manufacturer’s instructions, in order for the materials to conform to the fit and shape required by blueprints and fabrication details.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0894.08 Expand materials, using oxy-fuel equipment, according to manufacturer’s instructions, in order for the materials to conform to the fit and shape required by blueprints and fabrication details.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0894.0 OPERATE AND MAINTAIN OXY-FUEL EQUIPMENT...cont'd

U0894.09 Clean materials, using oxy-fuel equipment, according to manufacturer's instructions, in order to prepare the materials for cutting, welding and fitting operations.

Date Completed

Apprentice

Supervisor/Trainer

U0894.10 Maintain and store oxy-fuel equipment, ensuring gas cylinders are secured upright during storage and transportation, fuel and oxidizing gasses are separated during storage, hoses, gauges and torch equipment are free of damage, according to the *OHS*A and manufacturer's specifications.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0895.0 WELD FERROUS AND NON-FERROUS MATERIALS

GENERAL PERFORMANCE OBJECTIVE

Weld ferrous and non-ferrous materials by: identify welding procedures; selecting welding procedures; setting up oxy-fuel equipment; operating oxy-fuel equipment; setting up manual arc welding equipment; operating manual arc welding equipment; setting up semi-automatic arc welding equipment; operating semi-automatic arc welding equipment; setting up automatic arc welding equipment; operating automatic arc welding equipment; setting up and operating arc-air cutting and gouging equipment; operating arc-air cutting and gouging equipment; and fitting, tacking and bracing materials.

PERFORMANCE OBJECTIVES

SKILLS

U0895.01 Identify welding procedures, including oxy-fuel welding (O.F.W.), shielded metal arc welding (S.M.A.W.), gas tungsten arc welding (G.T.A.W), gas metal arc welding (G.M.A.W), flux core arc welding (F.C.A.W), submerged arc welding (S.A.W.), air carbon arc cutting (A.C.A.C.), plasma arc cutting (P.A.C.) and exothermic lance cutting (E.L.C.), to ensure appropriate task performance.

Date Completed

Apprentice

Supervisor/Trainer

U0895.02 Select welding procedures, according to Canadian Welding Bureau (C.W.B.) standards, in order to produce welds of sufficient quality and consistency to pass appropriate inspections.

Date Completed

Apprentice

Supervisor/Trainer

U0895.03 Set up oxy-fuel equipment, ensuring working pressures, tip size and type, filler rod, surface preparation and work angle, according to manufacturer’s instructions, in order to weld ferrous and non-ferrous materials, and produce welds of sufficient quality and consistency to pass appropriate inspection.

Date Completed

Apprentice

Supervisor/Trainer

U0895.0 WELD FERROUS AND NON-FERROUS MATERIALS...cont'd

U0895.04 Operate oxy-fuel equipment, ensuring working pressures, tip size and type, filler rod, surface preparation and work angle, according to manufacturer’s instructions, in order to weld ferrous and non-ferrous materials, and produce welds of sufficient quality and consistency to pass appropriate inspection.

Date Completed

Apprentice

Supervisor/Trainer

U0895.05 Set up manual arc welding equipment, using power source settings, polarity, electrode angle, type, electrode manipulation, filler rod composition, arc shielding gas and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass appropriate inspection using the S.M.A.W. and G.T.A.W. procedures.

Date Completed

Apprentice

Supervisor/Trainer

U0895.06 Operate manual arc welding equipment, using power source settings, polarity, electrode angle, type, electrode manipulation, filler rod composition, arc shielding gas and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass appropriate inspection using the S.M.A.W. and G.T.A.W. procedures.

Date Completed

Apprentice

Supervisor/Trainer

U0895.07 Set up semi-automatic arc welding equipment, using power source settings, electrode angle, electrode manipulation, wire type, size, shear stud size, arc shielding flux and gas, wire speed and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass appropriate inspection using the F.C.A.W. and G.M.A.W. procedures.

Date Completed

Apprentice

Supervisor/Trainer

U0895.0 WELD FERROUS AND NON-FERROUS MATERIALS...cont'd

U0895.08 Operate semi-automatic arc welding equipment, using power source settings, electrode angle, electrode manipulation, wire type, size, shear stud size, arc shielding flux and gas, wire speed and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass appropriate inspection using the F.C.A.W. and G.M.A.W. procedures.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0895.09 Set up automatic arc welding equipment, using the power source settings, electrode angle, wire type, size, arc shielding flux, wire speed, track speed and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass visual inspection using the S.A.W. procedure.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0895.10 Operate automatic arc welding equipment, using the power source settings, electrode angle, wire type, size, arc shielding flux, wire speed, track speed and correct number and types of weld passes, according to manufacturer’s instructions, in order to prepare, assemble and weld materials in the required position, and to produce welds of sufficient quality and consistency to pass visual inspection using the S.A.W. procedure.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0895.11 Set up arc-air cutting and gouging equipment, using power source settings, electrode type and size, air pressure, electrode manipulation, polarity, operating gas pressure, according to manufacturer’s instructions, in order to cut and gouge materials as required in the preparation, welding and modification of components using A.C.A.C., P.A.C. and E.L.C. procedures.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0895.0 WELD FERROUS AND NON-FERROUS MATERIALS...cont'd

U0895.12 Operate arc-air cutting and gouging equipment, using power source settings, electrode type and size, air pressure, electrode manipulation, polarity, operating gas pressure, according to manufacturer's instructions, in order to cut and gouge materials as required in the preparation, welding and modification of components using A.C.A.C., P.A.C and E.L.C. procedures.

Date Completed

Apprentice

Supervisor/Trainer

U0895.13 Fit, tack and brace materials, using manual welding equipment, in order to set and assemble components and to minimize distortion during welding operations.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0896.0 RIG AND HOIST EQUIPMENT AND COMPONENTS

GENERAL PERFORMANCE OBJECTIVE

Rig and hoist equipment and components by: planning lifts; selecting slings; assembling slings; inspecting and maintaining slings; selecting rigging hardware; assembling rigging hardware; inspecting and maintaining rigging hardware; selecting hoisting equipment; assembling hoisting equipment; inspecting and maintaining hoisting equipment; reeving or lacing blocks; tying and rendering knots, hitches and bends; splicing fibre rope; and establishing hand, voice and radio communications with co-workers and equipment operators..

PERFORMANCE OBJECTIVES

SKILLS

U0896.01 Plan lifts, by determining the weight of load, equipment capacity, sling type and configuration, center of gravity, location of components and place of installation, in order to rig and hoist in a safe and efficient manner.

Date Completed

Apprentice

Supervisor/Trainer

U0896.02 Select slings, including the types and sizes, numbers and configurations of wire rope, natural and synthetic fibre and chain slings, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

Date Completed

Apprentice

Supervisor/Trainer

U0896.03 Assemble slings, including the types and sizes, numbers and configurations of wire rope, natural and synthetic fibre and chain slings, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

Date Completed

Apprentice

Supervisor/Trainer

U0896.0 RIG AND HOIST COMPONENTS AND EQUIPMENT...cont'd

U0896.04 **Inspect and maintain slings**, by checking operation of moving components, condition of fibre and wire ropes, chains and attachments, lubricating and replacing damaged parts, according to manufacturer's instructions and the Rigging for Ironworkers manual, in order to ensure safe, efficient and productive rigging and hoisting.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0896.05 **Select rigging hardware**, including the types and sizes, numbers and configurations of shackles, spreader beams, cable clips, hooks, eyebolts, turnbuckles and blocks, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0896.06 **Assemble rigging hardware**, including the types and sizes, numbers and configurations of shackles, spreader beams, cable clips, hooks, eyebolts, turnbuckles and blocks, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0896.07 **Inspect and maintain rigging hardware**, by checking operation of moving components, condition of fibre and wire ropes, chains and attachments, lubricating and replacing damaged parts, according to manufacturer's instructions and the Rigging for Ironworkers manual, in order to ensure safe, efficient and productive rigging and hoisting.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0896.0 RIG AND HOIST COMPONENTS AND EQUIPMENT...cont'd

U0896.08 Select hoisting equipment, including the types and sizes, numbers and configurations of chain falls, come-a-longs, tirlors and tuggers, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0896.09 Assemble hoisting equipment, including the types and sizes, numbers and configurations of chain falls, come-a-longs, tirlors and tuggers, according to the Rigging for Ironworkers manual, in order to prepare for safe and efficient lifting, moving and placing of load.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0896.10 Inspect and maintain hoisting equipment, by checking operation of moving components, condition of fibre and wire ropes, chains and attachments, lubricating and replacing damaged parts, according to manufacturer's instructions and the Rigging for Ironworkers manual, in order to ensure safe, efficient and productive rigging and hoisting.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0896.11 Reeve or lace blocks, according to the Rigging for Ironworkers manual, in order to ensure safe and efficient rigging.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0896.12 Tie and render knots, hitches and bends, using natural fibre and synthetic rope, according to the Rigging for Ironworkers manual, in order to tie off material, equipment and personnel in a safe and secured manner.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0896.0 RIG AND HOIST COMPONENTS AND EQUIPMENT...cont'd

U0896.13 Splice fibre rope, according to the Rigging for Ironworkers manual, in order to ensure safe working capacity.

Date Completed

Apprentice

Supervisor/Trainer

U0896.14 Establish hand, voice and radio communications with co-workers and equipment operators, including specific signals used for helicopter lifts, in order to convey instructions and information to facilitate assembly, erection and installation, and to protect self and others from injury.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0897.0 ERECT STRUCTURAL MEMBERS

GENERAL PERFORMANCE OBJECTIVE

Erect structural members by: establishing benchmark; setting up and adjusting levelling instruments; checking anchor bolts and embedded parts; setting shims and base plates; erecting temporary members in sequence; plumbing and aligning structure; erecting miscellaneous iron; securing miscellaneous iron; correcting deficiencies in structural and miscellaneous members; installing temporary handrails, flooring and safety nets; hoisting decking; fitting decking; securing decking; erecting pre-engineered metal building systems; erecting wind turbines; erecting solar panel systems; fabricating platework for vessels and containers; and erecting platework for vessels and containers.

PERFORMANCE OBJECTIVES

SKILLS

U0897.01 Establish benchmark, according to drawings and specifications, in order to determine work/reference points.

Date Completed

Apprentice

Supervisor/Trainer

U0897.02 Set up and adjust levelling instruments, according to manufacturer’s instructions, in order to determine work/reference points.

Date Completed

Apprentice

Supervisor/Trainer

U0897.03 Check anchor bolts and embedded parts, including cleaning, placement, orientation, projection and condition, in order to prepare for assembly

Date Completed

Apprentice

Supervisor/Trainer

U0897.0 ERECT STRUCTURAL MEMBERS ...cont'd

U0897.04 Set shims and base plates, including bearing plates and levelling nuts, according to drawings and specifications, in order to ensure elevation and alignment.

Date Completed

Apprentice

Supervisor/Trainer

U0897.05 Erect temporary members in sequence, including columns, beams, trusses, joists and bracing, according to drawings and specifications, in order to comply with erection procedure established for the job.

Date Completed

Apprentice

Supervisor/Trainer

U0897.06 Plumb and align structure, using tools and equipment, according to drawings and specifications, in order to meet required tolerances.

Date Completed

Apprentice

Supervisor/Trainer

U0897.07 Erect miscellaneous iron, including trim angle, openings, canopies, crane rails, parapets and mezzanines, using tools, equipment and hardware, in order to meet drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0897.08 Secure miscellaneous iron, including trim angle, openings, canopies, crane rails, parapets and mezzanines, using tools, equipment and hardware, in order to meet drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0897.0 ERECT STRUCTURAL MEMBERS ...cont'd

U0897.09 Correct deficiencies in structural and miscellaneous members, including shortening, extending, reinforcing and coping members, according to drawings and specifications, in order to accommodate omissions and revisions, and to complete installations.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0897.10 Install temporary handrails, flooring and safety nets, at required locations, according to the *OHSA*, in order to protect self and others from injury.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0897.11 Hoist decking, including accessories such as trim and pans, using tools and equipment, according to drawings and specifications, in order to provide a base for flooring and roofing materials.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0897.12 Fit decking, including accessories such as trim and pans, using tools and equipment, according to drawings and specifications, in order to provide a base for flooring and roofing materials.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0897.13 Secure decking, including accessories such as trim and pans, using tools and equipment, according to drawings and specifications, in order to provide a base for flooring and roofing materials.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0897.0 ERECT STRUCTURAL MEMBERS ...cont'd

U0897.14 Erect pre-engineered metal building systems, using slings, rigging hardware, hoisting equipment and tools, according to drawings and specifications and the Ironworker Pre-Engineered Metal Building Systems Manual practices and procedures, in order to complete installations.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0897.15 Erect structural components of wind turbine systems, including unloading, storage and erection of base sections, tower sections, rotor blades, nacelle and transformers, using slings, rigging hardware, hoisting equipment and tools, according to drawings and specifications, in order to complete installations.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0897.16 Erect structural components of solar panel systems, including support framework, solar tracking actuators, associated fasteners and welding, using slings, rigging hardware, hoisting equipment and tools, according to drawings and specifications, in order to complete installations.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0897.17 Fabricate platework for vessels and containers, including bins, hoppers, break walls, kilns, furnaces, chutes, slides and ductwork, using tools and equipment, according to drawings and specifications.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0897.0 **ERECT STRUCTURAL MEMBERS ...cont'd**

U0897.18 **Erect platework for vessels and containers**, including bins, hoppers, break walls, kilns, furnaces, chutes, slides and ductwork, using tools and equipment, according to drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0898.0 INSTALL FASTENERS

GENERAL PERFORMANCE OBJECTIVE

Install fasteners by: identifying fasteners; selecting fastener; aligning components; preparing surfaces; selecting chemical adhesives; preparing chemical adhesives; installing fasteners; tensioning fasteners; and performing fastener inspections.

PERFORMANCE OBJECTIVES

SKILLS

U0898.01 Identify fasteners, according to drawings and specifications and the *American Standards of Testing Materials (A.S.T.M.)* A325, A490 and F1852 specifications, in order to meet the required size, length and type of fasteners

Date Completed

Apprentice

Supervisor/Trainer

U0898.02 Select fasteners, according to drawings and specifications and the *American Standards of Testing Materials (A.S.T.M.)* A325, A490 and F1852 specifications, in order to meet the required size, length and type of fasteners.

Date Completed

Apprentice

Supervisor/Trainer

U0898.03 Align components, using tools and equipment, in order to permit installation of fasteners.

Date Completed

Apprentice

Supervisor/Trainer

U0898.04 Prepare surfaces, including drilling and tapping concrete, steel and other non-ferrous materials, according to drawings and specifications, in order to receive fasteners.

Date Completed

Apprentice

Supervisor/Trainer

U0898.0 **INSTALL FASTENERS ...cont'd**

U0898.05 **Select chemical adhesives**, according to manufacturer's recommendations, in order to facilitate the tensile strength of the fastener.

Date Completed

Apprentice

Supervisor/Trainer

U0898.06 **Prepare chemical adhesives**, according to manufacturer's recommendations, in order to facilitate the tensile strength of the fastener.

Date Completed

Apprentice

Supervisor/Trainer

U0898.07 **Install fasteners**, using tools and equipment, according to drawings and specifications, in order to meet required tolerances.

Date Completed

Apprentice

Supervisor/Trainer

U0898.08 **Tension fasteners**, using required tools and equipment, through turn of nut method, direct tension indicating washer method, twist off tension control bolt tightening, calibrated wrench tightening, according to the Structural Steel Erection manual, in order to comply with drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0898.09 **Perform fastener inspections**, according to drawings, manufacturer's specifications and Structural Steel Erection Manual, in order to ensure that fasteners have been correctly installed.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0899.0 FABRICATE AND INSTALL ORNAMENTAL FERROUS AND NON-FERROUS COMPONENTS

GENERAL PERFORMANCE OBJECTIVE

Fabricate and install ornamental ferrous and non-ferrous components by: fabricating stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron; installing stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron; fitting floor plate and grating; installing floor plate and grating; installing doors, frames, attachments and components; loading, unloading and storing finished materials; finishing materials; installing covers, cladding, fascia and related components; installing shelving and racks; installing extruded and expanded metals and composite materials; and installing fencing.

PERFORMANCE OBJECTIVES

SKILLS

U0899.01 Fabricate stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0899.02 Install stairs, rails, kick plates, ladders, platforms, sleeves and miscellaneous iron, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0899.03 Fit floor plate and grating, using tools, equipment and hardware, according to drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0899.0 INSTALL AND FABRICATE ORNAMENTAL FERROUS AND NON-FERROUS COMPONENTS ...cont'd

U0899.04 Install floor plate and grating, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.05 Install doors, frames, attachments and components, including overhead doors, sectional doors, dock levellers, personnel doors, revolving doors and detention doors, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.06 Load, unload, store and install finished materials, without damaging surfaces, in order to meet the requirements of drawings and specifications.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.07 Finish materials, using chemicals, tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.08 Install covers, cladding, fascia and related components, using tools, equipment and hardware in order to meet the requirements of drawings and specifications.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.09 Install shelving and racks, using tools, equipment and hardware, according to drawings and specifications, in order to complete installation.

Date Completed _____
Apprentice _____
Supervisor/Trainer

U0899.0 INSTALL AND FABRICATE ORNAMENTAL FERROUS AND NON-FERROUS COMPONENTS ...cont'd

U0899.10 Install extruded and expanded metals and composite materials, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0899.11 Install fencing, including safety, security or ornamental types, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0900.0 INSTALL, MOVE AND MAINTAIN MACHINERY AND EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Install, move and maintain machinery and equipment by: laying out and setting anchors; installing falsework and shoring; assembling machinery components; rigging machinery; staging machinery; transporting machinery; assembling and placing machinery; aligning and balancing machinery; adjusting machinery components; maintaining and troubleshooting machinery; and dismantling machinery.

PERFORMANCE OBJECTIVES

SKILLS

U0900.01 **Layout and set anchors**, according to drawings and specifications, in order to receive bases or machinery and equipment.

Date Completed

Apprentice

Supervisor/Trainer

U0900.02 **Install falsework and shoring**, including floor plates, timbers, mats, grillage, stands, jacks, towers and bracing, using tools, equipment and hardware, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0900.03 **Assemble machinery components**, using tools, hardware and equipment, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0900.04 **Rig machinery**, including offloading from truck, barge or train, using tools, hardware and equipment, according to drawings and specifications, in order to prepare for installation.

Date Completed

Apprentice

Supervisor/Trainer

U0900.0 INSTALL, MOVE AND MAINTAIN MACHINERY ...cont'd

U0900.05 Stage machinery, using tools, hardware and equipment, according to drawings and specifications, in order to prepare for installation.

Date Completed

Apprentice

Supervisor/Trainer

U0900.06 Transport machinery, including loading and offloading, using tools, hardware and equipment, according to drawings and specifications, in order to prepare for installation.

Date Completed

Apprentice

Supervisor/Trainer

U0900.07 Assemble and place machinery, including transport to point of final installation, using tools, hardware and equipment and specialized power equipment such as skidding systems, strand jacking towers, gantry systems, hydraulic lifting trucks, bridge launchers, required, fork trucks and carry-deck cranes, in order to meet the requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0900.08 Align and balance machinery, including aligning and balancing drive mechanisms, mating surfaces for stamping presses and guides, using precision measuring devices and tools, according to manufacturer's specifications, in order to achieve required tolerances and to ensure reliable and efficient operation.

Date Completed

Apprentice

Supervisor/Trainer

U0900.09 Adjust machinery components, including adjustment of counterweights, load compensators and cycle speeds, using tools and equipment, according to manufacturer's specifications, in order to ensure safe and efficient operation.

Date Completed

Apprentice

Supervisor/Trainer

U0900.0 **INSTALL, MOVE AND MAINTAIN MACHINERY ...cont'd**

U0900.10 **Maintain and troubleshoot machinery**, using tools and equipment, in order to meet manufacturer's service recommendations and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0900.11 **Dismantle machinery**, using tools and equipment, according to manufacturer's procedures and specifications for lock-out, tag-out and de-energizing of machinery, in order to ensure safe and efficient task performance.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0901.0 INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install and fasten curtain wall and glass systems by: loading, unloading and storing finished curtain wall and window wall materials; selecting rigging, hoisting and staging equipment; assembling rigging, hoisting and staging equipment; assembling curtain wall sections and components; levelling and aligning curtain wall, window wall sections and components; applying specified adhesives, sealants, gaskets, insulating materials, vapour barriers and air seals; installing glass and thermo-pane units; installing panel units; installing window-wall units; installing miscellaneous glass systems; installing precast systems; inspecting finished curtain wall, window wall and miscellaneous glass systems; and retrofitting curtain wall, window wall and miscellaneous glass systems.

PERFORMANCE OBJECTIVE

SKILLS

U0901.01 Load, unload and store finished curtain wall and window wall materials, according to the Architectural and Ornamental Ironworking manual, in order to prepare for installation.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0901.02 Select rigging, hoisting and staging equipment, including glass cups, power cups, nylon slings, roustabouts and spreader bars, using tools and hardware, according to the Architectural and Ornamental Ironworking manual, in order to install curtain wall and window wall materials.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0901.03 Assemble rigging, hoisting and staging equipment, including glass cups, power cups, nylon slings, roustabouts and spreader bars, using tools and hardware, according to the Architectural and Ornamental Ironworking manual, in order to install curtain wall and window wall materials.

 Date Completed

 Apprentice

 Supervisor/Trainer

U0901.0 INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS ...cont'd

U0901.04 Assemble curtain wall sections and components, including the layout of anchors and installation of assembled frames and stick walls, using tools, equipment and hardware, according to the, Architectural and Ornamental Ironworking manual in order to meet requirements of drawings and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0901.05 Level and align curtain wall, window wall sections and components, using lines and precision measuring instruments, according to manufacturer's specified tolerances, in order to ensure fit and installation .

Date Completed

Apprentice

Supervisor/Trainer

U0901.06 Apply specified adhesives, sealants, gaskets, insulating materials, vapour barriers and air seals, using prescribed tools, equipment and hardware, according to manufacturer's specifications, in order to ensure optimal seal of the system.

Date Completed

Apprentice

Supervisor/Trainer

U0901.07 Install glass and thermo-pane units, using tools, equipment and hardware, according to manufacturer's specifications, in order to achieve seal and fit.

Date Completed

Apprentice

Supervisor/Trainer

U0901.08 Install panel units, including stone, metal, composite and glass panels, using tools, equipment and hardware, according to manufacturer's specifications, in order to achieve seal and fit.

Date Completed

Apprentice

Supervisor/Trainer

U0901.0 INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS ...cont'd

U0901.09 Install window-wall units, including revolving door systems, skylights atriums and domes, using tools, equipment and hardware, according to manufacturer's specifications, in order to achieve seal and fit.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0901.10 Install miscellaneous glass systems, including glass stairs, balustrades, smoke screens, shower enclosures, counters and partitions, using tools, equipment and hardware, according to manufacturer's specifications, in order to achieve seal and fit.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0901.11 Install precast systems, using tools, equipment and sealants, securing and aligning units by using tools, equipment and sealants, according to manufacturer's specifications, in order to achieve seal and fit.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0901.12 Inspect finished curtain wall, window wall and miscellaneous glass systems, upon completion of installation, in order to ensure that there are no defects in alignment, seal, and finish.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0901.0 **INSTALL AND FASTEN CURTAIN WALL AND GLASS SYSTEMS ...cont'd**

U0901.13 **Retrofit curtain wall, window wall and miscellaneous glass systems**, using tools, equipment and hardware, in order to maintain the existing framework and change glass in units that are defective or require replacement.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0902.0 INSTALL, MOVE AND MAINTAIN MATERIAL HANDLING EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Install, move and maintain material handling equipment by: planning installation of material handling systems and equipment; identifying and selecting components; laying out anchorages; fabricating supports; installing supports; installing material handling systems and equipment; assembling components; levelling and aligning components; fabricating guards, protective barriers and devices; installing guards, protective barriers and devices; starting up and troubleshoot material handling systems; maintaining material handling systems; decommissioning material handling systems; and disassembling material handling and robotic components.

PERFORMANCE OBJECTIVES

SKILLS

U0902.01 Plan installation of material handling systems and equipment, including determining the sequence, personnel, equipment needs, site preparation, staging and handling of robotics, automated mechanical systems, precision conveyors, bulk handling conveyors, mills, kilns, furnaces, coolers, baghouses, precipitators, crushers, pulpers, air slides, driers, shredders, hoppers, bucket elevators, apron feeders, vibratory feeders, separators, cyclones, ductwork and skip hoists, according to type, use and application, in order to ensure safe and efficient task performance.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0902.02 Select components, for installation, according to drawings and specifications, in order to ensure safe and efficient installation of components in sequence.

_____	_____	_____
Date Completed	Apprentice	Supervisor/Trainer

U0902.0 INSTALL, MOVE AND MAINTAIN MATERIAL HANDLING AND ROBOTIC EQUIPMENT ...cont'd

U0902.03 Layout anchorages, including truss clips, tail sections, drive sections, and primary header steel, according to drawings and specifications, in order to receive components of material handling systems.

Date Completed

Apprentice

Supervisor/Trainer

U0902.04 Fabricate supports, including header steel, support steel and related components, using tools, according to drawings and specifications, in order to receive material handling systems and equipment.

Date Completed

Apprentice

Supervisor/Trainer

U0902.05 Install supports, including header steel, support steel and related components, using hoisting and rigging equipment, tools and hardware, according to drawings and specifications, in order to receive material handling systems and equipment.

Date Completed

Apprentice

Supervisor/Trainer

U0902.06 Install material handling systems and equipment using tools and equipment in order to meet requirements of drawing specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0902.07 Assemble components, including anti-runaways, anti-backups, limit switches, gates, valves, pneumatic and hydraulic accessories, pneumatic fittings, stops, locators and diverters, according to specific erection plan, in order to prepare for safe and efficient installation.

Date Completed

Apprentice

Supervisor/Trainer

U0902.0 INSTALL, MOVE AND MAINTAIN MATERIAL HANDLING EQUIPMENT ...cont'd

U0902.12 Maintain material handling systems, using tools and equipment, in order to meet manufacturer's service recommendations and specifications.

Date Completed

Apprentice

Supervisor/Trainer

U0902.13 Decommission material handling systems, using tools and equipment, according to safe practices and site specific procedures for lock-out, tag-out and de-energizing of components under the *OHSA*, in order to ensure safe and efficient task performance.

Date Completed

Apprentice

Supervisor/Trainer

U902.14 Disassemble material handling and robotic components, using tools, according to manufacturer's procedures and specifications, in order to protect self and others from injury.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

U0903.0 ERECT AND DISMANTLE CRANES

GENERAL PERFORMANCE OBJECTIVE

Erect and dismantle cranes by: assessing site hazards; selecting crane type; determining crane position; preparing bases of crane; erecting cranes; disassembling crane components; and preparing crane for transport.

PERFORMANCE OBJECTIVE

SKILLS

U0903.01 Assess site hazards, including overhead power lines, underground services, obstructions to swing radius, swing area (radius) of crane, crane radius, load charts, according to the Ironworker Cranes manual, in order to protect self and others from injury.

Date Completed

Apprentice

Supervisor/Trainer

U0903.02 Select crane type, according to heaviest load, radius of pick, required height, site conditions, in order to ensure safety of all hoisting personnel.

Date Completed

Apprentice

Supervisor/Trainer

U0903.03 Determine crane position, according to crane types, capacity, radius, maximum weight of lifts, limitations due to inclement weather, weights of components, calculation of available headroom, selection of crane for required task, according to the Ironworker Cranes manual, in order to ensure safe and efficient task performance

Date Completed

Apprentice

Supervisor/Trainer

U09003 ERECT AND DISMANTLE CRANES...cont'd

U0903.04 Prepare bases of crane, taking into account gross weight of crane, composition of base (such as soil, concrete and steel), types of pads, selecting pads such as mats, dunnage and grillage, visually assessing ground conditions, and installing falsework, according to the Ironworker Cranes manual, in order to ensure crane is stable and level.

Date Completed

Apprentice

Supervisor/Trainer

U0903.05 Erect cranes, following the assembly and erection procedure specified by the manufacturer, in order to ensure safe and efficient hoisting operations.

Date Completed

Apprentice

Supervisor/Trainer

U0903.06 Disassemble crane components, using methods, sequence, equipment and tools, according to manufacturer's specifications, in order to ensure safety of self and others.

Date Completed

Apprentice

Supervisor/Trainer

U0903.07 Prepare crane for transport, using prescribed tools, equipment and hardware, placing and securing components on transportation deck, according to manufacturer's specifications, in order to ensure safety of self and others and prevent damage to crane components.

Date Completed

Apprentice

Supervisor/Trainer

Sponsor/Employer Name

Sponsor/Employer Signature

APPRENTICE RECORD

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system.

For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.

APPRENTICE NAME (Print):

SPONSOR/EMPLOYER INFORMATION	
Training Agreement #	
Name	
Address	
Telephone	
E-mail Address	

SUMMARY OF TRAINING	
Employment Start Date	
Employment End Date	
Total hours of training & instruction between dates of employment	

Date Completed

Apprentice

Supervisor/Trainer

APPRENTICE RECORD

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Total hours of training & instruction between dates of employment	

Date Completed

Apprentice

Supervisor/Trainer

APPRENTICE COMPLETION FORM

APPRENTICE INFORMATION	
Name (Print)	
Signature	
Social Insurance Number	

Skill Sets, when completed, should be signed by the Supervisor/Trainer and presented with this completion form to your local Apprenticeship Client Services Office. Any supporting documentation should also be attached.

In-school Completed Yes () No () Not applicable ()
 (Proof to be Provided)

Hours completed as Yes () No () Not applicable ()
 Per Contract:

SPONSOR/EMPLOYER INFORMATION	
Name (Print)	
Address	
Telephone	
E-mail Address	
Signature of Signing Authority	