

	2022 Structure	Came from (2015 NOA)	Workshop Comments	Harmonization comments
MWA A	Performs common occupational skills			
Task 1	Performs safety-related functions			
1.01	Maintains safe work environment	1.01		
1.02	Uses personal protective equipment (PPE) and safety equipment	1.02	changed to Uses after jurisdictional review. Rationale provided: Use is the major verb, selection and inspection are included as part of the skills	
1.03	Follows lock-out and tag-out (LOTO) procedures	1.03	added "tag out" as this was missing. Group decided to keep 26.01 separate.	
Task 2	Uses and maintains tools and equipment			group moved everything into level 1. Tools and equipment card added to in context for year 2 if need more time for plasma cutting
2.01	Uses common tools and equipment	2.01		
2.02	Uses access equipment	2.02		
2.03	Uses welding equipment	2.03		
2.04	Uses soldering and brazing equipment	2.04		
2.05	Uses oxy-fuel and plasma cutting equipment	2.05	moved from the uses welding equipment- small group felt it was more appropriate here	
Task 3	Organizes job			
3.01	Plans work	3.01		
3.02	Generates drawings	3.02		
3.03	Interprets drawings and specifications	3.03		

3.04	Develops piping templates	3.04		moved to level 2 only from level 1. group felt most jurisdictions are already delivering in level two with no introduction in level 1
3.05	Performs quality control functions	3.05		
3.06	Handles materials and components	new	Accepting, receiving, storing materials, unloading trucks	agreed to have in level 1
Task 4	Uses communication and mentoring techniques	new	Added for consistency with structure of new RSOS	
4.01	Uses communication techniques	new	Added for consistency with structure of new RSOS	agreed to level 1 for communication and mentoring in level 4 as presented
4.02	Uses mentoring techniques	new	Added for consistency with structure of new RSOS	agreed to level 1 for communication and mentoring in level 4
MWA B	Performs layout, fabrication and piping installation		The group decided to leave installs in this section since it is important to identify and install different types of tubing regardless of system. Sections of pipe installation in MWA E are system specific.	
Task 5	Performs fabrication	Task 4		

5.01	Fabricates piping system components	4.01		
5.02	Fabricates brackets, supports, hangers, guides and anchors	4.02		
Task 6	Lays out and installs piping, tubing, fittings and related components	Task 5	"identifies" was deleted as it was deemed that it is covered under the Skills.	
6.01	Lays out and installs copper tube, tubing, fittings and related components	5.01	piping not added since it is covered under specialty piping. Non-ferrous piping was added under the RofV for specialty piping. "identifies" was deleted as it was deemed that it is covered under the Skills.	
6.02	Lays out and installs plastic piping, fittings and related components	5.02	"identifies" was deleted as it was deemed that it is covered under the Skills. "tubing" was deleted as it was ranged as a type of pipe	
6.03	Lays out and installs carbon steel piping, fittings and related components	5.03	"identifies" was deleted as it was deemed that it is covered under the Skills. "tubing" was deleted as it was ranged as a type of pipe	
6.04	Lays out and installs stainless steel piping, tubing, fittings and related components	5.04	identifies was deleted as it was deemed that it is covered under the Skills.	
6.05	Lays out and installs fibreglass piping, fittings and related components	5.05	identifies was deleted as it was deemed that it is covered under the Skills.	
6.06	Lays out and installs speciality piping, fittings and related components	5.06	identifies was deleted as it was deemed that it is covered under the Skills.	
Task 7	Installs, maintains, troubleshoots, repairs and tests valves	Task 6	Valves is a very complex installation and needs to have its own section. More specific in every system. Backflow preventers are part of the valves. Pump installation is covered under systems.	
7.01	Installs valves	6.01		
7.02	Maintains, troubleshoots, repairs and tests valves	6.02		

Task 8	Installs, tests, maintains, troubleshoots and repairs heat tracing systems	Task 7		
8.01	Installs steam tracing systems	7.01		
8.02	Maintains, troubleshoots, repairs and tests steam tracing systems	7.02		
8.03	Installs liquid-filled tracing systems	7.03		
8.04	Maintains, troubleshoots, repairs and tests liquid-filled tracing systems	7.04		
MWA C	Performs rigging, hoisting, lifting and positioning	MWA C		
Task 9	Performs common rigging, hoisting, lifting and positioning	Task 8		
9.01	Determines load	8.01		
9.02	Prepares lift plan(s) for common rigging, hoisting, lifting and positioning	8.02	Added "common" to keep consistent with complex and critical	context card in level 2 is good enough to the group as they are doing lots of rigging in level 1 and needs to be covered in level 1 as basic rigging. Left as is.
9.03	Selects rigging, hoisting, lifting and positioning equipment for common lifts	8.03	Added "common" to keep consistent with complex and critical	
9.04	Inspects rigging, hoisting, lifting and positioning equipment	8.04		
9.05	Secures lift area	8.05		
9.06	Sets up rigging, hoisting, lifting and positioning equipment for common lifts	8.06	Added "common" to keep consistent with complex and critical	
9.07	Performs common lift and positioning	8.07	Added "common" to keep consistent with complex and critical	
9.08	Maintains and stores rigging, hoisting, lifting and positioning equipment	8.08		
Task 10	Performs complex and critical rigging, hoisting, lifting and positioning	Task 9		
10.01	Prepares lift plan for complex and critical rigging, hoisting, lifting and positioning	9.01		
10.02	Performs calculations for complex and critical rigging, hoisting, lifting and positioning	9.02		

10.03	Selects rigging, hoisting, lifting and positioning equipment for complex and critical lifts	9.03		
10.04	Sets up rigging, hoisting, lifting and positioning equipment for complex and critical lifts	9.04		
10.05	Performs complex and critical lifts and positioning	9.05		
MWA D	Installs, tests, maintains, troubleshoots and repairs low and high pressure steam and condensate systems	MWA D		
Task 11	Installs, tests, maintains, troubleshoots and repairs low pressure steam and condensate systems	Task 10		
11.01	Installs equipment for low pressure steam and condensate systems	10.01		
11.02	Installs piping for low pressure steam and condensate systems	10.02		
11.03	Tests low pressure steam and condensate systems	10.03		
11.04	Maintains, troubleshoots and repairs low pressure steam and condensate systems	10.04		
Task 12	Installs, tests, maintains, troubleshoots and repairs high pressure steam and condensate systems	Task 11		some original members from harmonization are in this group--- Check Deans notes
12.01	Installs equipment for high pressure steam and condensate systems	11.01		
12.02	Installs piping for high pressure steam and condensate systems	11.02		

12.03	Tests high pressure steam and condensate systems	11.03		
12.04	Maintains, troubleshoots and repairs high pressure steam and condensate systems	11.04		
MWA E	Installs, tests, maintains, troubleshoots and repairs heating, cooling and process piping systems	MWA E		
Task 13	Installs, tests, maintains, troubleshoots and repairs hydronic systems	Task 12		hydronic is split in level 2 and 3 for many. Need time to experience various hydronic systems.
13.01	Installs equipment for hydronic systems	12.01		
13.02	Installs piping for hydronic systems	12.02	"tubing" not added. It is ranged as a type of pipe	
13.03	Tests hydronic systems	12.03		
13.04	Maintains, troubleshoots and repairs hydronic systems	12.04		
Task 14	Installs, tests, maintains, troubleshoots and repairs process piping systems	Task 13		
14.01	Installs equipment for process piping systems	13.01		
14.02	Installs piping for process piping systems	13.02	"tubing" not added. It is ranged as a type of pipe	
14.03	Tests process piping systems	13.03		
14.04	Maintains, troubleshoots and repairs process piping systems	13.04		
Task 15	Installs, tests, maintains, troubleshoots and repairs industrial water and waste treatment systems	Task 14		
15.01	Installs equipment for industrial water and waste treatment systems	14.01		
15.02	Installs piping for industrial water and waste treatment systems	14.02	"tubing" not added. It is ranged as a type of pipe	
15.03	Tests industrial water and waste treatment systems	14.03		
15.04	Maintains, troubleshoots and repairs industrial water and waste treatment systems	14.04		

Task 16	Installs, tests, maintains, troubleshoots and repairs hydraulic systems	Task 15		
16.01	Installs equipment for hydraulic systems	15.01		
16.02	Installs piping and hoses for hydraulic systems	15.02	"tubing" deleted. It is ranged as a type of pipe	
16.03	Tests hydraulic systems	15.03		
16.04	Maintains, troubleshoots and repairs hydraulic systems	15.04		
Task 17	Installs, tests, maintains, troubleshoots and repairs heating, ventilation, air conditioning and refrigeration (HVACR) systems	Task 16		
17.01	Installs equipment for HVACR systems	16.01		
17.02	Installs piping for HVACR systems	16.02	reference to hydronic and refrigeration tubing removed as it was determined that it didn't need to be distinguished and is ranged as a type of pipe	
17.03	Tests HVACR systems	16.03	"associated components" deleted because you need to check the entire HVACR system	
17.04	Maintains, troubleshoots and repairs HVACR systems	16.04	"associated components" deleted because you need to check the entire HVACR system	
Task 18	Installs, tests, maintains, troubleshoots and repairs fuel systems	Task 17		
18.01	Installs equipment for fuel systems	17.01		
18.02	Installs piping for fuel systems	17.02	"tubing" deleted. It is ranged as a type of pipe	
18.03	Tests fuel systems	17.03		
18.04	Maintains, troubleshoots and repairs fuel systems	17.04		
Task 19	Installs, tests, maintains, troubleshoots and repairs medical gas systems	Task 18		
19.01	Installs equipment for medical gas systems	18.01		
19.02	Installs piping for medical gas systems	18.02	"tubing" deleted. It is ranged as a type of pipe	
19.03	Tests medical gas systems	18.03		
19.04	Maintains, troubleshoots and repairs medical gas systems	18.04		
Task 20	Installs, tests, maintains, troubleshoots and repairs compressed air and pneumatic systems	Task 19		

20.01	Installs equipment for compressed air and pneumatic systems	19.01		
20.02	Installs piping for compressed air and pneumatic systems	19.02	"tubing" deleted. It is ranged as a type of pipe	
20.03	Tests compressed air and pneumatic systems	19.03		
20.04	Maintains, troubleshoots and repairs compressed air and pneumatic systems	19.04		
Task 21	Installs and tests fire protection systems	Task 20	"Maintaining, troubleshooting and repairing" is usually done by Sprinklerfitters and not part of this trade.	in the event this is common core- it should be in level 4
21.01	Installs equipment for fire protection systems	20.01		
21.02	Installs piping for fire protection systems	20.02	"tubing" not added. It is ranged as a type of pipe	
21.03	Tests fire protection systems	20.03		
MWA F	Installs, tests, maintains, troubleshoots and repairs renewable energy systems	MWA F		
Task 22	Installs, tests, maintains, troubleshoots and repairs geo-exchange and geothermal systems	Task 21		
22.01	Installs equipment for geo-exchange and geothermal systems	21.01		
22.02	Installs piping for geo-exchange and geothermal systems	21.02	"tubing" not added. It is ranged as a type of pipe	
22.03	Tests geo-exchange and geothermal systems	21.03		
22.04	Maintains, troubleshoots and repairs geo-exchange and geothermal systems	21.04		
Task 23	Installs, tests, maintains, troubleshoots and repairs solar heating systems	Task 22		
23.01	Installs equipment for solar heating systems	22.01		
23.02	Installs piping for solar heating systems	22.02	"tubing" not added. It is ranged as a type of pipe	
23.03	Tests solar heating systems	22.03		
23.04	Maintains, troubleshoots and repairs solar heating systems	22.04		
Task 24	Installs, tests, maintains, troubleshoots and repairs heat recovery systems	Task 23		
24.01	Installs equipment for heat recovery systems	23.01		

24.02	Installs piping for heat recovery systems	23.02	"tubing" not added. It is ranged as a type of pipe	
24.03	Tests heat recovery systems	23.03		
24.04	Maintains, troubleshoots and repairs heat recovery systems	23.04		
MWA G	Performs commissioning, start-up and turnover	MWA G		
Task 25	Prepares system for commissioning, start-up and turnover	Task 24		
25.01	Flushes system	24.01		
25.02	Chemically treats system	24.02		
25.03	Pre-checks system for commissioning	24.03		
25.04	Selects and connects commissioning equipment	24.04		
Task 26	Commissions systems	Task 25		
26.01	Secures commission area	25.01	Group decided to keep 1.03 and 26.01 separate.	
26.02	Pressurizes systems	25.02		
26.03	Inspects system	25.03		
26.04	Corrects faulty conditions	25.04		
26.05	Participates in start-up and turn-over procedure	25.05		