

# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                           | Level 1                                                                                              | Page 1/2                 |
|-------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                            | On-The-Job Duties                                                                                    | Completed                |
| Maintains safe & healthy workplace        | Maintain safety by following protocols                                                               | <input type="checkbox"/> |
|                                           | Perform LOTO procedures & confirm zero energy                                                        | <input type="checkbox"/> |
|                                           | Select & use PPE & safety equipment                                                                  | <input type="checkbox"/> |
|                                           | Participate in healthy & respectful work environment                                                 | <input type="checkbox"/> |
| Uses communication & mentoring techniques | Demonstrate effective communication through active listening, reflection & verbal & written response | <input type="checkbox"/> |
| Uses tools & equipment                    | Select & use hand tools                                                                              | <input type="checkbox"/> |
|                                           | Inspect power tools for unsafe conditions                                                            | <input type="checkbox"/> |
|                                           | Replace the cutting wheel on pipe cutting tool                                                       | <input type="checkbox"/> |
|                                           | Connect recovery equipment following manufacturers' instructions                                     | <input type="checkbox"/> |
|                                           | Clean & flush vacuum pumps as per guidelines                                                         | <input type="checkbox"/> |
|                                           | Calibrate scales & gauges for accuracy                                                               | <input type="checkbox"/> |
|                                           | Verify CAT Rating of meter matches the system being tested                                           | <input type="checkbox"/> |
|                                           | Erect, secure, level & dismantle ladders                                                             | <input type="checkbox"/> |
|                                           | Rig loads according to procedures & regulations                                                      | <input type="checkbox"/> |
|                                           | Connect smartphones to Bluetooth & Wi-Fi accessories                                                 | <input type="checkbox"/> |
| Organizes work                            | Verify equipment details using manuals                                                               | <input type="checkbox"/> |
|                                           | Prepare material lists & confirm availability                                                        | <input type="checkbox"/> |
| Performs work site preparation            | Assess job hazards by reviewing tasks & controls                                                     | <input type="checkbox"/> |
|                                           | Receive & verify materials using packing slips                                                       | <input type="checkbox"/> |
| Installs control systems                  | Place and secure a thermostat, sensor, or control device in the specified location.                  | <input type="checkbox"/> |
|                                           | Select wiring, cabling & tubing according to manufacturers' specifications                           | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                 | Level 1                                                                                                         | Page 2/2                 |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                  | On-The-Job Duties                                                                                               | Completed                |
| Performs trade-specific activities                              | Cut, ream, bend & connect piping & tubing using approved methods                                                | <input type="checkbox"/> |
|                                                                 | Record leak & pressure test results for integrity                                                               | <input type="checkbox"/> |
|                                                                 | Perform vacuum tests according to manufacturers' specifications                                                 | <input type="checkbox"/> |
|                                                                 | Select & charge a system with the correct refrigerant & refrigerant oil according to manufacturer specification | <input type="checkbox"/> |
|                                                                 | Install & terminate low-voltage control wiring between a thermostat and HVAC/R equipment.                       | <input type="checkbox"/> |
|                                                                 | Choose sealants & adhesives according to compatibility & manufacturers' specifications                          | <input type="checkbox"/> |
| Plans installation of standard & high efficiency HVAC/R systems | Identify basic environmental factors that affect system placement                                               | <input type="checkbox"/> |
| Plans installation of control systems                           | Identify serviceability & code requirements for placement                                                       | <input type="checkbox"/> |
| Installs HVAC/R systems                                         | Lay out equipment locations                                                                                     | <input type="checkbox"/> |
|                                                                 | Secure brackets & hangers according to codes & specifications                                                   | <input type="checkbox"/> |
|                                                                 | Cut, fit & connect piping according to industry standards                                                       | <input type="checkbox"/> |
|                                                                 | Select, introduce & monitor refrigerant to achieve positive pressure                                            | <input type="checkbox"/> |
| Maintains HVAC/R systems                                        | Perform visual inspection of HVAC/R systems                                                                     | <input type="checkbox"/> |
|                                                                 | Verify refrigeration system sequence of operation                                                               | <input type="checkbox"/> |
|                                                                 | Use fluid flow measurement tools to test system operation                                                       | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                 | Level 2                                                                                                       | Page 1/2                 |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                  | On-The-Job Duties                                                                                             | Completed                |
| Organizes work                                                  | Verify equipment installation details from manuals & bulletins                                                | <input type="checkbox"/> |
|                                                                 | Determine pipe & duct sizes using standard charts                                                             | <input type="checkbox"/> |
|                                                                 | Store materials according to site conditions & manufacturers' specifications                                  | <input type="checkbox"/> |
| Performs trade-specific activities                              | Identify system oil & refrigerant requirements                                                                | <input type="checkbox"/> |
|                                                                 | Interpret schematics to identify termination points                                                           | <input type="checkbox"/> |
| Plans installation of standard & high efficiency HVAC/R systems | Select equipment and accessories based on application requirements and manufacturer specifications            | <input type="checkbox"/> |
|                                                                 | Determine placement of CRAC & packaged units.                                                                 | <input type="checkbox"/> |
|                                                                 | Determine insulation type and thickness                                                                       | <input type="checkbox"/> |
| Plans installation of control systems                           | Determine integrated control circuits                                                                         | <input type="checkbox"/> |
|                                                                 | Determine system tie-in points using drawings & site information                                              | <input type="checkbox"/> |
|                                                                 | Calculate material quantities based on specifications & requirements                                          | <input type="checkbox"/> |
| Plans retrofits                                                 | Perform revised load calculations based on system requirements                                                | <input type="checkbox"/> |
|                                                                 | Measure existing piping, ducting & airflow distribution for retrofit suitability                              | <input type="checkbox"/> |
| Installs HVAC/R systems                                         | Check unpacked equipment for shipping damage & compatibility                                                  | <input type="checkbox"/> |
|                                                                 | Install anchors & supports according to regulations & specifications                                          | <input type="checkbox"/> |
|                                                                 | Recover & document refrigerants & oils in preparation to retrofit & according to environmental specifications | <input type="checkbox"/> |
|                                                                 | Replace compressor on a commercial refrigeration system                                                       | <input type="checkbox"/> |
|                                                                 | Cut, fit & connect piping according to industry standards                                                     | <input type="checkbox"/> |
| Installs control systems                                        | Perform pre-assembly checks on controls & devices for condition & accuracy                                    | <input type="checkbox"/> |
|                                                                 | Layout wiring, cabling & tubing paths according to drawings & specifications                                  | <input type="checkbox"/> |
|                                                                 | Modify control settings to match modified or updated system                                                   | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                      | Level 2                                                                     | Page 2/2                 |
|--------------------------------------|-----------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                       | On-The-Job Duties                                                           | Completed                |
| Verifies system performance          | Verify & adjust operating parameters to manufacturers' specifications       | <input type="checkbox"/> |
|                                      | Confirm HVAC/R & control systems communicate & operate together as designed | <input type="checkbox"/> |
|                                      | Adjust system settings to improve efficiency & performance                  | <input type="checkbox"/> |
|                                      | Record commissioning results & complete required documentation              | <input type="checkbox"/> |
| Maintains HVAC/R systems             | Conduct safety checks & identify components needing further investigation   | <input type="checkbox"/> |
|                                      | Lubricate bearings, motors & linkages, as required                          | <input type="checkbox"/> |
|                                      | Check refrigerant pressures & temperatures for abnormalities                | <input type="checkbox"/> |
| Services HVAC/R systems              | Gather client information about equipment concerns & history                | <input type="checkbox"/> |
|                                      | Replace the refrigerant in an existing system                               | <input type="checkbox"/> |
| Maintains & services control systems | Complete regular preventative maintenance activities                        | <input type="checkbox"/> |
|                                      | Discuss client concerns to diagnose issues                                  | <input type="checkbox"/> |
|                                      | Verify system operation & calibration after completing repairs              | <input type="checkbox"/> |
|                                      | Replace a faulty pressure switch                                            | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                 | Level 3                                                                                                           | Page 1/3                 |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                  | On-The-Job Duties                                                                                                 | Completed                |
| Maintains continuous learning                                   | Apply new trade practices learned through training, manuals or bulletins                                          | <input type="checkbox"/> |
|                                                                 | Demonstrate use of emerging HVAC/R technologies & related equipment                                               | <input type="checkbox"/> |
| Organizes work                                                  | Determine pipe & duct sizes using tables & charts                                                                 | <input type="checkbox"/> |
|                                                                 | Select & order parts based on documentation & specifications                                                      | <input type="checkbox"/> |
|                                                                 | Schedule equipment delivery to meet timelines                                                                     | <input type="checkbox"/> |
| Plans installation of standard & high efficiency HVAC/R systems | Calculate system capacity using load data & application requirements                                              | <input type="checkbox"/> |
|                                                                 | Determine electric backup, supplemental & auxiliary heating requirements for air conditioning & heat pump systems | <input type="checkbox"/> |
|                                                                 | Assess equipment placement limitations according to codes, design & environmental factors                         | <input type="checkbox"/> |
|                                                                 | Calculate pipe size & length based on run, refrigerant & equipment capacity                                       | <input type="checkbox"/> |
| Plans installation of control systems                           | Determine control requirements based on system operation & manufacturers' specifications                          | <input type="checkbox"/> |
|                                                                 | Select & install components per manufacturer & engineering specifications                                         | <input type="checkbox"/> |
|                                                                 | Assess component placement to avoid interference & ensure code compliance                                         | <input type="checkbox"/> |
|                                                                 | Develop material order list for control components and accessories                                                | <input type="checkbox"/> |
| Plans retrofits                                                 | Analyze system performance data to identify opportunities for energy improvement                                  | <input type="checkbox"/> |
|                                                                 | Determine equipment, materials & operational requirements for retrofit projects                                   | <input type="checkbox"/> |
|                                                                 | Analyze airflow & piping distribution installation to determine retrofit requirements                             | <input type="checkbox"/> |
|                                                                 | Perform sizing calculations for retrofit components                                                               | <input type="checkbox"/> |
|                                                                 | Determine control system modifications required for retrofit applications                                         | <input type="checkbox"/> |
| Installs control systems                                        | Set hardware options & positions according to job specifications & site conditions                                | <input type="checkbox"/> |
|                                                                 | Install wiring, cabling & tubing following codes & standards                                                      | <input type="checkbox"/> |
|                                                                 | Mount & program controls & devices                                                                                | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                  | Level 3                                                                                                       | Page 2/3                 |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                   | On-The-Job Duties                                                                                             | Completed                |
| Installs HVAC/R systems                                          | Verify equipment matches take-offs & site measurements                                                        | <input type="checkbox"/> |
|                                                                  | Assemble & adjust components according to design specifications                                               | <input type="checkbox"/> |
|                                                                  | Secure components to meet regulations & specifications                                                        | <input type="checkbox"/> |
|                                                                  | Convert systems to approved refrigerants & oils following procedures                                          | <input type="checkbox"/> |
|                                                                  | Remove & dispose of a damaged evaporator                                                                      | <input type="checkbox"/> |
|                                                                  | Cut, fit & connect piping according to industry standards                                                     | <input type="checkbox"/> |
| Commissions new & retrofitted HVAC/R & control system components | Confirm electrical, mechanical and control connections prior to start-up                                      | <input type="checkbox"/> |
|                                                                  | Ensure utilities meet specifications & are balanced                                                           | <input type="checkbox"/> |
|                                                                  | Verify control devices, safeties & sequences operate as designed during start-up                              | <input type="checkbox"/> |
|                                                                  | Measure and interpret system pressures, temperatures, superheat and subcooling to verify proper system charge | <input type="checkbox"/> |
|                                                                  | Select diagnosis tools to verify functionality                                                                | <input type="checkbox"/> |
| Verifies system performance                                      | Verify parameters meet specifications, site conditions & client requirements                                  | <input type="checkbox"/> |
|                                                                  | Verify HVAC/R equipment, controls & auxiliary systems operate together as designed                            | <input type="checkbox"/> |
|                                                                  | Fine-tune system settings to achieve required system performance or improve efficiency                        | <input type="checkbox"/> |
|                                                                  | Document test results, deficiencies & corrective actions                                                      | <input type="checkbox"/> |
| Maintains HVAC/R systems                                         | Inspect equipment & components for wear, damage & proper operation                                            | <input type="checkbox"/> |
|                                                                  | Perform preventative maintenance according to schedules & specifications                                      | <input type="checkbox"/> |
|                                                                  | Test components using instruments & compare results to specifications                                         | <input type="checkbox"/> |
|                                                                  | Adjust system operation to improve efficiency & reliability                                                   | <input type="checkbox"/> |
| Services HVAC/R systems                                          | Diagnose problems using tools, client information & system readings                                           | <input type="checkbox"/> |
|                                                                  | Shut down or isolate failed components & recover refrigerant following procedures                             | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                      | Level 3                                                                             | Page 3/3                 |
|--------------------------------------|-------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                       | On-The-Job Duties                                                                   | Completed                |
| Maintains & services control systems | Inspect control systems to meet manufacturers' specifications & client requirements | <input type="checkbox"/> |
|                                      | Discuss client concerns & diagnose problems using tools & equipment                 | <input type="checkbox"/> |
|                                      | Test system conditions & verify controls function within design settings            | <input type="checkbox"/> |
|                                      | Select replacement components based on specifications & availability                | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                 | Level 4                                                                                        | Page 1/2                 |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                  | On-The-Job Duties                                                                              | Completed                |
| Maintains continuous learning                                   | Evaluate & implement new trade practices to improve work processes                             | <input type="checkbox"/> |
|                                                                 | Integrate emerging technologies into installation, maintenance or service activities           | <input type="checkbox"/> |
| Uses communication & mentoring techniques                       | Demonstrate a skill to a new worker under journeyperson supervision                            | <input type="checkbox"/> |
| Organizes work                                                  | Determine installation procedures based on specifications & site conditions                    | <input type="checkbox"/> |
|                                                                 | Interpret manufacturer specifications and technical documentation                              | <input type="checkbox"/> |
|                                                                 | Coordinate with suppliers to prevent delays                                                    | <input type="checkbox"/> |
| Plans installation of standard & high efficiency HVAC/R systems | Determine system design parameters using engineering & load calculation data                   | <input type="checkbox"/> |
|                                                                 | Identify refrigeration systems with energy savings & environmental benefits                    | <input type="checkbox"/> |
|                                                                 | Measure equipment for fit within specified locations according to site requirements            | <input type="checkbox"/> |
|                                                                 | Create material orders & identify alternative options based on requirements                    | <input type="checkbox"/> |
| Plans installation of control systems                           | Determine operating ranges to ensure control of space & equipment                              | <input type="checkbox"/> |
|                                                                 | Evaluate control component limitations based on design & application                           | <input type="checkbox"/> |
|                                                                 | Select optimal locations for controls based on function & requirements                         | <input type="checkbox"/> |
|                                                                 | Assess material options for cost, performance & environmental impact                           | <input type="checkbox"/> |
| Plans retrofits                                                 | Recommend energy efficiency improvements                                                       | <input type="checkbox"/> |
|                                                                 | Discuss retrofit solutions based on performance issue & client requirements                    | <input type="checkbox"/> |
|                                                                 | Determine ducting and piping changes for retrofits                                             | <input type="checkbox"/> |
|                                                                 | Performs load calculations & sizes equipment & components for HVAC/R retrofit applications     | <input type="checkbox"/> |
|                                                                 | Modify control components to accommodate changes to the system                                 | <input type="checkbox"/> |
| Services HVAC/R systems                                         | Troubleshoot systems, analyze data & suggest repair options                                    | <input type="checkbox"/> |
|                                                                 | Repair components, conduct tests & retrofit systems according to manufacturers' specifications | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic

## On-the-Job Checklist

|                                                                  | Level 4                                                                                   | Page 2/2                 |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------|
| Red Seal Tasks                                                   | On-The-Job Duties                                                                         | Completed                |
| Commissions new & retrofitted HVAC/R & control system components | Inspect electrical components for loose or damaged wiring                                 | <input type="checkbox"/> |
|                                                                  | Inspect & adjust HVAC/R controls for optimal operation                                    | <input type="checkbox"/> |
|                                                                  | Verify connections meet manufactures' specifications & jurisdictional regulations         | <input type="checkbox"/> |
|                                                                  | Measure & interpret load conditions using pressures, temperatures, superheat & subcooling | <input type="checkbox"/> |
|                                                                  | Measure & interpret readings from HVAC/R systems to verify design compliance              | <input type="checkbox"/> |
| Verifies system performance                                      | Program controllers & set points as required                                              | <input type="checkbox"/> |
|                                                                  | Verify equipment interlocks function as intended                                          | <input type="checkbox"/> |
|                                                                  | Analyze operational data to identify system cycling                                       | <input type="checkbox"/> |
|                                                                  | Complete final quality checks & submit the final turnover documents to the client         | <input type="checkbox"/> |
| Maintains HVAC/R systems                                         | Perform refrigerant leak check                                                            | <input type="checkbox"/> |
|                                                                  | Develop & execute a preventative maintenance program to monitor a system                  | <input type="checkbox"/> |
|                                                                  | Interpret test results to identify components requiring service                           | <input type="checkbox"/> |
|                                                                  | Optimize integrated system operation using performance data & trends                      | <input type="checkbox"/> |
| Maintains & services control systems                             | Conduct run checks, verify controls & suggest improvements                                | <input type="checkbox"/> |
|                                                                  | Analyze data to identify issues & recommend solutions                                     | <input type="checkbox"/> |
|                                                                  | Adjust controls to meet design parameters & regulations                                   | <input type="checkbox"/> |
|                                                                  | Document components repaired or replaced for future maintenance                           | <input type="checkbox"/> |

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# Refrigeration & Air Conditioning Mechanic On-the-Job Checklist

## Information Regarding the Checklist

Saskatchewan Apprenticeship and Trade Certification Commission's (SATCCs) On-The-Job Checklist provides a complete list of trade-specific Red Seal tasks for apprentices to complete under the supervision of a journeyman. This work should be completed prior to attending the technical training level under which the duties are listed (e.g. Level 1 completed prior to attending Level 1 technical training).

Completing this checklist will ensure that apprentices are exposed to the full scope of a particular Red Seal trade throughout their apprenticeship program. It will also help prepare apprentices for each level of technical training by performing work on-the-job relating specifically to topics covered later on. The trade-specific tasks listed have been reviewed by certified journeymen in Saskatchewan for their accuracy and have been set to an appropriate skill level.

An apprentice spends approximately 85% of their apprenticeship term training on-the-job. It is the both the apprentice and the employer's or journeyman's responsibility to supervise an apprentice's practical skills development during their program.

To promote transparency and consistency, this document aligns with the 2024 Refrigeration & Air Conditioning Mechanic Red Seal Occupational Standard (Employment and Social Development Canada).

A complete version of the Occupational Standard can be found at [www.red-seal.ca](http://www.red-seal.ca)

### **Saskatchewan Apprenticeship & Trade Certification Commission (Regina)**

2140 Hamilton St Regina SK, S4P 2E3

Tel: (306) 787-2444

Toll Free: 1-877-363-0536

Website: [www.saskapprenticeship.ca](http://www.saskapprenticeship.ca)

### **Saskatchewan Apprenticeship & Trade Certification Commission (Saskatoon)**

603 45<sup>th</sup> Street West Saskatoon, SK S7L 5W5

Tel: (306) 933-8476

Toll Free: 1-877-363-0536

Website: [www.saskapprenticeship.ca](http://www.saskapprenticeship.ca)

### **District Offices**

Estevan (306) 637-4930

La Ronge (306) 425-4385

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**All work performed in this checklist is to be done under the supervision and guidance of a certified journeyman**

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