ROLLING OWNER CONTROLLED INSURANCE PROGRAM (ROCIP)

ROCIP 5 Safety Manual

Program Term: September 1, 2025 to September 1, 2032
Version 1.0

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CONTENTS

The Table of Contents below is linked to each respective section of the manual for ease of navigation.

1. INTRODUCTION AND GENERAL INFORMATION 7
2. DEFINITIONS 9
3. DEN ROCIP SAFETY TEAM DIRECTORY 11
4. SAFETY RESPONSIBILITIES AND REPRESENTATIVE QUALIFICATIONS 12
- 4.1 Statement of Authority 12
  - **4.1.1** Variances 12
- 4.2 DEN ROCIP Safety Team Responsibilities 12
- 4.3 Contractor Safety Requirements 13
- 4.4 Contractor Safety Representative (CSR) 13
  - **4.4.1** Contractor Safety Representative Staffing Ratios 14
  - **4.4.2** Contractor Safety Representative Shift Representation 14
  - **4.4.3** Safety Representative Qualification Criteria and Submittal 14
  - **4.4.4** Safety Representative Responsibilities 15
- 4.5 Subcontractor Safety Representative 17
  - **4.5.1** Subcontractor CSR Qualifications- Less than 50 employees 17
  - **4.5.2** Subcontractor Safety Representative Qualifications- More than 49 Employees 17
  - **4.5.3** Subcontractor Safety Representative Responsibilities 18
- 4.6 Field Supervisor Requirements 18
  - **4.6.1** Field Supervisor Qualifications 18
  - **4.6.2** Field Supervisor Responsibilities 18
- 4.7 Contractor Project Manager 19
- 4.8 Employee Responsibilities 19

5. DRUG AND ALCOHOL TESTING AND EDUCATION REQUIREMENTS 20
- 5.1 Drug-Free Workplace Policy 20
  - **5.1.1** Prohibition Against Unlawful Presence of Controlled Substances in the Workplace 20
  - **5.1.2** Sanctions for Violation of the Drug-Free Workplace Policy 21
  - **5.1.3** Contractor Substance Abuse Policy 21
- 5.2 Notification Requirements 21
- 5.3 Required Drug Testing 21
  - **5.3.1** Pre-employment Drug Testing 21
  - **5.3.2** Post-Incident and Reasonable Suspicion Testing 22
  - **5.3.3** Return to Duty Testing 23
- 5.4 Confidentiality 23

6. SAFETY PRE-PLANNING REQUIREMENTS 24
- 6.1 Initial Pre-Planning Requirements 24
  - **6.1.1** Contractor's Site-Specific Safety Plan (SSSP) 24
- 6.2 Pre-Work Hazard Mitigation Planning Requirements 25
  - **6.2.1** Daily Pre-Task Planning and Job Hazard Analysis 25
  - **6.2.2** Subcontractor Pre-Mobilization Meeting 26
- 6.3 Exposure Specific Pre-Planning Submittal Requirements 27
  - **6.3.1** Crane Operations 27
  - **6.3.2** Elevated Work 30
  - **6.3.3** Lock-Out Tag-Out 31
  - **6.3.4** Utility and Tension Cable Damage Prevention Plans 32

6.3.5 Trenching 33
6.3.6 Confined Space 34
6.3.7 Tunneling 35
6.3.8 Silica Exposure and Slurry Control Program 35
6.3.9 Demolition Plans for Employee and Adjacent People or Property Safety 36
6.3.10 Ventilation 36
6.3.11 Respiratory Protection 36
6.3.12 Robotics in Construction 37
6.3.13 Hot Work and Wet Work Protection 37
6.3.14 Public and Adjacent Worker Protection Plan 37
6.3.15 Traffic Control 37
6.3.16 Heavy Equipment & Trucking 38
6.3.17 Falsework, Formwork, and Shoring 39

7. SAFETY TRAINING AND MEETING REQUIREMENTS 40
7.1 Weekly Joint Safety Meeting 40
7.2 Employee Orientation Training 40
7.3 Tour & Visitor Guidelines 41
7.4 Regulatory Training 41
7.5 Weekly Safety Toolbox Meeting 41
7.6 Supervisory Safety Meetings 41
7.7 ROCIP Safety Meetings 42
7.8 ROCIP Quarterly Safety Meetings 42

8. SAFETY/LOSS REPORTING AND INSPECTION REQUIREMENTS 43
8.1 Post-Incident Reports 43
8.1.1 Incident Notification 43
8.1.2 Investigations, Reporting, and Review Requirements 43
8.2 Return to Work Program 45
8.3 Project Injury Report 45
8.4 Jobsite Safety Inspections 46
8.5 DEN Safety Observations and Contractor Response Requirements 46
8.6 OSHA Inspections 46
8.7 Miscellaneous Inspections 47

9. ADDITIONAL SAFETY PROGRAM REQUIREMENTS 48
9.1 Safety Awareness 48
9.2 Lessons Learned 48
9.3 Stretch and Flex Program 48
9.4 Employee Near Miss Reporting Program 49
9.5 Safety Accountability Program 49
9.6 Fatigue Management 50
9.7 Mental Health Awareness and Suicide Prevention in Construction 51
9.8 Serious Injury and Fatality Prevention Program 51

10. SAFETY PROVISIONS 52
10.1 Airport Rules and Regulations 52
10.1.1 Safety Management System 52
10.1.2 Badging Requirements 52
10.1.3 Airfield Driver Training and Badging 52
10.1.4 Vehicle and Equipment Identification 53
10.1.5 Wildlife Management 53

10.1.6 Foreign Object Debris (FOD) Management 53
10.1.7 Coordination with Denver Fire Department 53
10.1.8 Airport Operations 54
10.2 Motor Vehicles & Equipment 55
10.2.1 Personal Vehicles 55
10.2.2 Jobsite Vehicles & Equipment 55
10.3 Lifting Operations 57
10.3.1 Crane Operations 57
10.3.2 Crane Assembly/Disassembly 57
10.3.3 Crane Operators 58
10.3.4 Site Supervisor 58
10.3.5 Lift Director 58
10.3.6 Rigging 59
10.3.7 Lift Signals 59
10.3.8 Shift Crane Inspections 60
10.3.9 Crane Placement 60
10.3.10 Work Platforms Suspended from Cranes 61
10.4 Elevated Work - Fall Restraint, Fall Arrest, Guardrails, or other Leading-Edge Requirements 61
10.4.1 Types of Fall Protection Systems 61
10.4.2 Safety Harness and Anchorage Devices 62
10.4.3 Lanyards 62
10.4.4 Horizontal Lifelines 62
10.4.5 Training 63
10.5 Scaffolding 64
10.5.1 General Requirements 64
10.5.2 Rolling Scaffolds 64
10.5.3 Scaffold Planking 64
10.5.4 Scaffold Tagging 65
10.6 Mobile Elevating Work Platforms- formerly Scissor Lifts (Group A) and Aerial Lifts (Group B)) 65
10.6.1 Supervisor MEWP Training Requirements 66
10.6.2 Employee and Operator MEWP Training Requirements 66
10.7 Floor and Roof Openings 66
10.8 Ladders 66
10.8.1 General Requirements 66
10.8.2 Fall Protection and Prevention on Ladders 67
10.8.3 Usage 67
10.8.4 Storage 67
10.8.5 Job Built Ladders. 68
10.9 Rescue Plans for Falls in Harness 68
10.10 Dropped Object Protection 68
10.11 Excavations and Trenching 68
10.12 Utility and Structural Component Damage Prevention for Underground Utilities and Buildings 69
10.12.1 Personnel Training for 3rd Party Utility Locates 70
10.12.2 Prework Requirements for Structure Penetrations or Demolition 70
10.12.3 Prework Requirements for Earth Penetrative Work 70
10.12.4 Prework Requirements for Concrete Panel or Asphalt Removal 72
10.12.5 Excavation and Concrete Panel or Asphalt Removal 72
10.13 Hazardous Materials and Hazardous Waste 73
10.14 Spill Prevention 74
10.15 Hazard Communication 75
10.16 Confined Space Entry 75

10.16.1 Entering A Permit-Required Confined Space 76
10.16.2 Air Monitoring 76
10.16.3 Ventilation 77
10.16.4 Protective Equipment 77
10.16.5 Rescue 78
10.16.6 Training 78
10.17 Tunneling in Construction 78
10.18 Silica 79
10.18.1 Silica Safe Work Practices 79
10.18.2 Air Monitoring 80
10.18.3 Training 81
10.19 Respiratory Protection and Supplied Air 81
10.20 Electrical 82
10.20.1 General Lock-Out Information 82
10.20.2 Lock-Out Procedures 83
10.20.3 Energized Electrical Work 84
10.21 Steel Erection 86
10.22 Wet Work 87
10.23 Hot Work 87
10.23.1 Hot Work Permit Procedure 87
10.23.2 General Requirements 87
10.23.3 Welding and Cutting 88
10.23.4 Electric Arc Welding 89
10.23.5 Gas Welding or Cutting 89
10.23.6 Compressed Gas Cylinders 90
10.24 Fire Prevention and Protection 91
10.25 Powder Actuated Tools 92
10.26 Traffic Control 92
10.27 Heat and Cold Illness Protection 93
10.28 Personal Protective Equipment 93
10.28.1 Eye Protection 93
10.28.2 Head Protection 94
10.28.3 Hearing Protection 94
10.28.4 Foot Protection 94
10.28.5 Clothing and High-Visibility Garments 94
10.28.6 Hand Protection 95
10.28.7 Respiratory Protection 95
10.29 Low Level Light/Night Work 95
10.30 Housekeeping, Access, and Material Handling 96
10.31 Illumination 97
10.32 Administrative Controls and Inspection Documentation 97
10.33 General Conduct 97
10.34 Protection of the Public and Property 98
10.35 Site Security 99
10.36 Smoking (includes Vaping) 100
10.37 Sanitation 100
10.37.1 Potable water 100
10.37.2 Toilets 100
10.37.3 Washing and Changing Facilities 101
10.37.4 Break Areas 101

APPENDIX A- SITE-SPECIFIC SAFETY PLAN REQUIREMENTS 102

Appendix A.1- Site Specific Safety Plan Detailed Requirements 102
Appendix A.2- OSHA Regulations Requiring Competent, Authorized, or Qualified 102
Appendix A.3- Project Level Exposure Assessment 102
APPENDIX B- HAZARD ASSESSMENT TOOLS 121
Appendix B.1- Job Hazard Analysis Sample Form and Example 121
Appendix B.2- Personal Protective Equipment Hazard Analysis 121
Appendix B.3- Daily Pre-Task Planning Sample Form 121
APPENDIX C- EXPOSURE SPECIFIC PLANNING FORMS 128
Appendix C.1 – Crane and Lift Plan 128
Appendix C.2 – Critical Lift Plan Form (F) 128
Appendix C.3 – Shared Space Agreement Sample Form 128
Appendix C.4 – Suspended Personnel Work Platform Checklist 128
Appendix C.5 – Elevated Work – Ladders 128
Appendix C.6 – Elevated Work – Mobile Elevated Work Platforms (MEWPs) 128
Appendix C.7 – Elevated Work – Fall restraint/Arrest and Leading-Edge Protection 128
Appendix C.8 – Elevated Work - Scaffolding 128
Appendix C.9 – Electrical LOTO 128
Appendix C.10 – Non-Electrical Hazardous Energy and Water Systems LOTO 128
Appendix C.11 – Utility Damage Prevention – Ground and Surface 128
Appendix C.12 – Utility and Structure Damage Prevention – Walls and Floors 128
Appendix C.13 – Trenching Work Plan 128
Appendix C.14 – Confined Space Plan 128
Appendix C.15 – Sample Confined Space daily permit 128
Appendix C.16 – Silica Exposure and Slurry Control Program 128
Appendix C.17 – Demolition Plan 128
Appendix C.18– Ventilation Plan 128
Appendix C.19 – Respiratory Protection Plan 128
Appendix C.20 – Hot Work Permit Sample Form 128
Appendix C.21 – Wet Work Permit Sample Form 128
Appendix C.22 – Public and Adjacent Worker Protection Plan 128
Appendix C.23 – Heavy Equipment and Operator List 128
Appendix C.24 – Additional Personnel List 128
Appendix C.25 – Sample Emergency Lock Removal Form for Absent Worker 128
APPENDIX D- CONTRACTOR WEEKLY SAFETY LOOKAHEAD 199
APPENDIX E- SUBCONTRACTOR PREMOBILIZATION SAFETY MEETING 202
APPENDIX F- VISITOR'S WAIVER AND RELEASE 204
APPENDIX G- SAFETY ORIENTATION TRAINING ACKNOWLEDGEMENT 206
APPENDIX H- INVESTIGATION/CLAIM FORM FIELDS FOR RMIS 207
APPENDIX I- DRUG SCREEN REQUISITION AND AUTHORIZATION FORM 216

1

1. Introduction and General Information

The ROCIP Safety Manual (Manual) was developed to ensure proactive safety processes are established and implemented on DEN Rolling Owner Controlled Insurance Program (ROCIP) projects to lessen and prevent incidents and injuries to all employees and the public while working at DEN. Contractors and subcontractors of any tier are responsible for full compliance with this Manual and all applicable laws, statutes, ordinances, rules, regulations and/or orders of any public authority (federal, state, local) as they relate to safety of persons, environment, public, or property.

This Manual is not an attempt to reiterate all applicable health and safety standards, instead it provides a uniform framework for safety and health management at DEN. DEN may make changes to these standards during the duration of a construction contract upon written notice to the contractor without further agreement or approval by the Contractor and these changes will become immediately binding and enforceable by DEN. All applicable Occupational Safety and Health Administration (OSHA), American National Standards Institute (ANSI), Federal Aviation Administration (FAA), National Electrical Code (NEC), and National Fire Protection Association (NFPA) standards are incorporated into this Manual, and the construction contract by reference if not incorporated specifically.

Throughout the duration of a project, the Contractor and their subcontractors, of any tier, shall be responsible for administering their own safety program. Neither this Manual, nor the safety services provided by DEN or others associated with a project, are intended to serve as a substitute for the control and responsibility of the Contractor and subcontractor(s) to provide a safe work environment for their employees, staff and the public. The Contractor is responsible for overseeing the safety of all employees, including their subcontractors, on a project. This is required regardless of its subcontractors' eligibility for coverage under the ROCIP program; however, this does not relieve the subcontractor of its safety responsibilities.

ROCIP has specific safety requirements that, in many instances, exceed current federal, state, or local safety and environmental standards. The Contractor and its subcontractors must comply with ROCIP's safety and environmental standards if they exceed other standards. In the event of a conflict between any Contract Documents for a project and this Manual, DEN will determine which safety procedures will be followed.

The Contractor and subcontractors must thoroughly review this document and the appropriate portions of the Contract Documents, including all exhibits and incorporated documents such as Division 1 Technical Specifications, to understand the risks inherent in a project and the safety measures needed to adequately protect employees and the public from harm. No accommodations or changes in time or cost of the work will be made to Contractors and subcontractors, due to ignorance regarding safety program requirements. The cost of compliance shall be borne solely by the Contractor and subcontractors.

These requirements are incorporated into the Contract by reference and are binding. Failure to comply with these requirements will be deemed non-compliance or default of the contract. Payments of monthly pay applications may be withheld until compliance is deemed satisfactory. Failure to comply may result in the removal of a person or company from a project or termination of a contract.

DEN reserves the right to make any changes and modifications to this Manual which may be transmitted via bulletin, memo, or other written communication and are effective without further approval or acceptance by the Contractor.

ALL CONTRACTORS PERFORMING WORK ON A ROCIP PROJECT, REGARDLESS OF ELIGIBILITY FOR INSURANCE ENROLLMENT, MUST FOLLOW THE SAFETY REQUIREMENTS OF THE CONTRACT AND THIS MANUAL.

No waiver of any provision of this Manual or Technical Specification 013510 Construction Safety shall be deemed to have been made unless it is expressed in writing and signed by the party against whom the waiver is claimed. No delay or omission in the exercise of any right or remedy accruing upon a breach of this Manual or Technical Specification 013510 Construction Safety shall impair such right or remedy or be construed as a waiver of such breach.

2

2. Definitions

The following acronyms and titles may not reflect the actual titles and acronyms in use by all entities on a project and do not have any force or effect beyond their use in this Manual. Due to such differences in nomenclature among Owners and Contractors, the following are used throughout this Manual to establish the functional framework for the ROCIP Safety Program. Terms of ROCIP govern where there is conflict with other referenced definitions.

a. **Accident** An undesired event causing injury, illness, property damage or loss of life.
b. **Contractor** The entity with which the City and County of Denver enters into a contract.
c. **Contractor Safety Representative** Safety professional, meeting minimum requirements and approved by DEN, assigned fulltime and dedicated to the project to monitor the safety of Contractor employees and subcontractors under the scope of work of a contract.
d. **DEN ROCIP Safety Team/DEN Construction Safety (DEN Safety)** This is the management team that represents the safety and health interests of ROCIP in the prevention of insurable loss on Department of Aviation (DEN) ROCIP projects. The team members only include those declared in Section 3 of this Manual or as amended by the Construction Safety Manager listed in Section 3.
e. **Drug/Substance** Includes illicit drugs, misused, or abused prescribed or over-the-counter medications, controlled substances, marijuana, and alcohol.
f. **Employee** Person employed by an Employer as defined by this section.
g. **Employer** Firm or entity that has Employees working on a ROCIP site. The term Employer includes the Contractor and Subcontractors of all tiers.
h. **Job Hazard Analysis (JHA)** Documented process by which the steps (procedures) required to accomplish a work activity are outlined, the actual or potential hazards of each step are identified, and measures for the elimination or control of those hazards are developed.
i. **Near Miss Incident** Incident with potential to cause harm or injury but because of circumstances resulted in no harm or damage.
j. **Project Manager** The individual designated by DEN to serve as the owner's representative for all project-related matters. Note that this position is not to be confused with the Contractor's project manager.
k. **Public** Public means any member of the general public or other airport stakeholder or employee that is not dedicated to the work on the project.
l. **Relevant Construction Safety and Health Experience** Full site safety program management including field and office responsibilities for similar programs for construction projects of similar scope and size.
m. **ROCIP Broker** Marsh, Inc. herein referred to as the "Broker" providing risk management and construction safety consulting.
n. **ROCIP Insurer** The insurance companies providing DEN ROCIP coverages.
o. **Rolling Owner Controlled Insurance Program (ROCIP)** Owner's wrap-up insurance program which provides insurance coverage for eligible and enrolled owner's representatives, Contractors, and Subcontractors of any tier, working on City and County of Denver ROCIP project sites. The Owner and Broker identifies program participants.
p. **Site-Specific Safety Program (SSSP)** The Employer's Site-Specific Safety Program prepared in accordance with the requirements of this document and the Contract. This incorporates the Contractor's Corporate Safety Manual or Policies which at a minimum must meet OSHA and standards outlined in this Manual.

q. **Subcontractor** Firm or other entity awarded work by a Contractor on a ROCIP project. Subcontractor as used herein shall apply to all tiers of Subcontractors, as well as vendors and service providers performing work for the benefit of the Contractor. For the purposes of the Safety Standards, vendors, suppliers, and service providers on the project for the furtherance of the project are covered by this definition and *are subject to the provisions of the Safety Standards regardless of insurance enrollment*.

Note: OSHA definitions apply for: authorized person; competent person; hole; qualified person, attendant, or operator; and walking and working surface. FAA Definitions can be found here.

3. DEN ROCIP Safety Team Directory

Following is a list of key safety and loss control contacts for the DEN ROCIP.

DEN SAFETY KEY CONTACTS – ROCIP SAFETY TEAM

CONSTRUCTION SAFETY MANAGER

Suezann Bohner	303.342.2363	suezann.bohner@flydenver.com

SENIOR CONSTRUCTION SAFETY PROFESSIONALS

Tony McCrimmon	303.342.2138	russell.mccrimmon@flydenver.com
Danielle Chavez	303.342.2135	danielle.chavez@flydenver.com
Kenneth Roberts	303.342.2638	kenneth.roberts@flydenver.com
Jason Baker	303.342.2136	jason.baker@flydenver.com
Rudy Andazola	303.342.2717	rodolfo.andazola@flydenver.com
Martin Kreutzer	303.342.2142	martin.kreutzer@flydenver.com
Brad Stefano	303.342.2066	bradford.stefano@flydenver.com

DEN KEY CONTACTS – ROCIP RISK MANAGEMENT

DEN RISK (INSURANCE & CLINIC ASSISTANCE) - See ROCIP5 Insurance Manual for more

Martin Le Grice	720.902.1307	martin.legrice@flydenver.com

MARSH KEY CONTACTS – ROCIP ADMINISTRATOR/INSURANCE BROKER

SAFETY AND LOSS CONTROL

Mark Schaaf	303.549.2499	mark.schaaf@marsh.com

ZURICH – ROCIP INSURER

SAFETY AND LOSS CONTROL

Amir Vafaee	619.654.9330	amir.vafaee@zurichna.com
Dominic Mincone	303-241-6432	dominic.mincone@zurichna.com

For environmental questions, please contact your DEN PM or DEN Sustainability at 303.342.4200.

For enrollment, Workers' Compensation, medical treatment authorization, or claim questions, please refer to the ROCIP 5 Insurance Manual and/or ROCIP 5 Claims Manual.

FOR ALL EMERGENCIES CALL 303-342-4211

4

4. Safety Responsibilities and Representative Qualifications

4.1 Statement of Authority

All persons who come into the work area for any reason during construction will be required to comply with the established safety regulations that govern the ROCIP Project. The DEN ROCIP Safety Team, ROCIP Broker, and ROCIP Insurer shall directly review and manage the requirements of the ROCIP Safety Plan.

If the DEN ROCIP Safety Team finds the Contractor controlled areas of work or individuals in noncompliance with OSHA, the Site-Specific Safety Plan, Manual requirements, Airport Rules or Regulations, or any other applicable regulations, **DEN in its sole discretion shall have the authority to order immediate correction and to stop work**.

Noncompliance with Contractor Site-Specific Safety Plan, Contractor Corporate Safety Policies and Procedures, or this Manual may be grounds for Contractor dismissal and/or employee(s) being forbidden entry onto any DEN project. All costs of correction shall be borne by the Contractor. Nothing contained herein shall serve to relieve the Contractor of its liabilities and/or obligations to comply with the requirements set forth by OSHA, or other applicable Federal, State and Local requirements. The most stringent and protective standard shall apply if a conflict arises in the interpretation of the safety requirements of the ROCIP Safety Manual, the Contractor's SSSP or Corporate Policies or subcontracts, or Federal, State, or Local Government laws or regulations.

4.1.1 Variances

Variances to specific requirements in this Manual may be granted at the sole discretion of the DEN ROCIP Construction Safety Team. Any variance request must be in writing and provided as a Submittal. Variance must be accepted by DEN Safety prior to Contractor deviation from the Manual. DEN may accept, reject, revise, or revoke any safety variance in its sole discretion.

4.2 DEN ROCIP Safety Team Responsibilities

The DEN ROCIP Safety Team is responsible for generating and maintaining a high level of commitment for safe operations among all personnel assigned to the project site. The responsibilities and duties of The DEN ROCIP Safety Team may include, but are not limited to, the following:

a. Review and accept Site Specific Safety Plans and Task Specific Safety Plans, review and approve Contractor Safety Representative qualifications, and evaluate variance requests.
b. Compile, follow up, and maintain safety performance statistics for the project. Communicate information to the project's management to ensure they are informed of the safety program.
c. Keep apprised of new regulations and developments to keep the safety policies and procedures current and effective. Update and disseminate this Manual.

d. Observe Contractors' and Subcontractors' activities to evaluate safety performance and make appropriate recommendations and ensure compliance with approved plans.
e. Review and communicate methods and procedures to foster the highest level of accident prevention performance possible.
f. Participate in Contractor Safety Representatives incident investigations as deemed necessary. Review all accident investigation and near miss reports to ensure thorough investigations were conducted to control future accidents and communicate lessons learned.
g. Periodically attend Contractor safety toolbox meetings, orientations, and review JHA's or SOP's to ensure content and quality are being achieved.
h. Review and evaluate Contractors' safety program to ensure it meets the standards of this Manual and all approved pre-planning safety documents.
i. Conduct periodic Contractor Safety Meetings to discuss current work activities, review Manual revisions and/or share lessons learned.
j. Periodically conduct audits to ensure contractor compliance with and enforcement of the terms of this Manual.
k. Respond to Contractor inquiries regarding ROCIP language interpretation and requests for safety variance requests. Any safety variance may be granted and/or revoked at any time at DEN's sole discretion.

4.3 Contractor Safety Requirements

Contractors and Subcontractors, of any tier, have the explicit responsibility to perform work in accordance with the Contract Documents, federal law (including but not limited to both 29CFR1910 and 29CFR1926 and their relevant statutes), the Manual requirements, and any applicable statutes and regulations related to the FAA, Transportation Safety Administration (TSA), Department of Homeland Security (DHS) or United States Customs and Border Protection (CBP). Before construction can begin, the Contractor must have the following in place:

a. Site Specific Safety Plan reviewed and accepted by the DEN ROCIP Safety Team
b. Contractor Safety representative reviewed and accepted by the DEN ROCIP Safety Team
c. Each employer enrolled in ROCIP Insurance Plan (see ROCIP Insurance Manual requirements)
d. Where required, employees must obtain a Security Identification Display Area (SIDA) airport badge before pre-employment drug test is administered
e. Negative drug test results for all workers, including subcontractors, on file with Contractor
f. Completed Site Safety Orientation training for all workers and signed Acknowledgement on file
g. Contractor will issue project sticker provided by DEN to be displayed on hard hat
h. Employees' first and last names displayed on the front of their hard hats
i. Applicable task-specific safety plans and JHAs reviewed with all employees
j. High hazard safety plans from Section 6.3 for applicable scopes of work

4.4 Contractor Safety Representative (CSR)

The Contractor shall assign a dedicated, full-time on-site safety professional to a project, meeting the qualifications in Section 4.3.3, to monitor the safety of their employees and Subcontractors under the scope of work of a contract. A CSR must be present for the entire duration of work activities with the expectation that they will spend most of the shift on site to ensure adherence to safe work practices. More oversight, including one or more additional safety personnel, may be requested by DEN depending on contractor performance and adherence to safe work practices as observed by DEN or their representatives during safety inspections. The cost of additional oversight requested by DEN because of the Contractor's safety performance or failure to adhere to safe work practices shall be borne by Contractor and shall not be the subject of a Contractor Change Request or Change Order.

4.4.1 Contractor Safety Representative Staffing Ratios

If the manpower loading exceeds 125 employees on a project, a second full-time CSR shall be assigned. If the project exceeds 225 employees, the Contractor will add a third full-time CSR and will schedule a meeting within 2 weeks of exceeding 225 employees on site to discuss with DEN the need for adding additional safety personnel to ensure the safety requirements of the ROCIP are fully met.

4.4.2 Contractor Safety Representative Shift Representation

A full-time CSR, accepted by DEN Safety, meeting the minimum qualification outlined in Section 4.3.3 shall be assigned to each shift when contractor is engaged in multiple shifts.

4.4.3 Safety Representative Qualification Criteria and Submittal

The qualifications, resume, and project list of the CSR candidate(s) must be submitted to the DEN Safety for review and acceptance within three (3) days of Notice to Proceed (NTP).

DEN Safety will schedule an interview with the proposed *CSR* candidate. This interview is one of the determining factors of the qualification process. Acceptability of the candidate is determined at DEN's sole discretion.

CSRs must at a minimum:

a. Hold a Board of Certified Safety Professionals CSP with at least 4 years of full-time relevant construction safety and health experience; **or**
b. Hold a Board of Certified Safety Professionals ASP, GSP, or SMS with at least 6 years of full-time relevant construction safety and health experience; **or**
c. Hold a Board of Certified Safety Professionals CHST or OHST with at least 8 years of full-time relevant construction safety and health experience.

To determine 'relevant' construction experience, a list of projects, their approximate valuation and scope, and the safety representative's duration on the projects needs to be submitted along with the CSR's resume and copies of all their required certifications.

The DEN ROCIP Safety Team has sole discretion regarding disqualification of the candidate based on credentials, opinion of relevancy of experience, the interview, demonstrated aptitude during the project and/or past DEN project performance, attitude, and partnering. Qualification of the CSR may be revoked by DEN at any time for failure to fulfill the responsibilities or perform to the standards set forth in this Manual.

AND have all of the following training/knowledge:

a. Completed the OSHA 500 course, remaining authorized as a trainer for the duration of the project.
b. Provide proof of non-expired completion of Cardio–Pulmonary Resuscitation (CPR), First Aid, Automated External Defibrillation (AED), and Mental Health First Aid.
c. Provide proof of completion of Federal Motor Carrier Safety Administration (FMCSA) compliant 2-hour drug and alcohol reasonable suspicion supervisory training.

d. Knowledge of and ability to fulfill CSR's responsibilities set forth in this Manual and the Contractor's CSPP where applicable.

Additional training required for projects requiring landside traffic control:

a. Valid Colorado Traffic Control Supervisor (TCS) or Traffic Control Technician (TCT) Certification or Endorsement, or
b. A full-time traffic manager/engineer is assigned during all working shifts with above credential or better and is tasked with continuous oversight of safe condition of TTC.

This oversight responsibility cannot be fulfilled by traffic control subcontractors.

4.4.3.1 Alternate Contractor Safety Representative

The Contractor will also submit the resume and credentials for a temporary safety representative meeting the minimum requirements in Section 4.5.1 for General Contractor Superintendents. This alternate employee will be responsible for all the responsibilities in Section 4.3.4 during a CSR's absence, not to exceed seven (7) consecutive days, nor more than fifteen (15) days total for the year without prior authorization. For absences of more than seven (7) consecutive days, the Contractor shall propose another CSR meeting Section 4.3.3 for DEN's acceptance. The alternate safety representative may not be used for shift coverage as required in 4.2.2 without written authorization by DEN Safety. The Alternate safety representative may be disqualified at DEN Safety's discretion.

4.4.4 Safety Representative Responsibilities

Specific responsibilities of the CSR are listed in the following sections. These responsibilities cannot be abdicated or assigned. The CSR and General Contractor are tasked with site safety program management and subcontractor oversight, development, training, and mentoring necessary to meet the safety performance and planning standards set forth in this Manual.

4.4.4.1 Employee Safety Orientation, Training, and Instruction

a. Conduct safety orientation sessions for all Contractor, Subcontractor, and DEN employees or representatives prior to them starting work on site.
b. Apprise all employees of their safety rights and responsibilities in accordance with regulations and this manual.
c. Participate in weekly toolbox safety meetings.
d. Assist field supervisors with meetings as requested.
e. Conduct monthly supervisor safety meetings.
f. Participate in Job Hazard Analysis development and Pre-Task Planning activities, to include assisting and mentoring subcontractors to refine their programs.
g. Instruct employees concerning special procedures (e.g., lock-out, excavation, confined space entry, fall protection, FAA, TSA, DHS, etc.) as required by OSHA or this manual.
h. Evaluate employee performance and knowledge of safety rules and standards.
i. Conduct regulatory training as required or necessary for all employees on site.
j. Conduct emergency action plan training.

4.4.4.2 Record Keeping

a. Complete and maintain OSHA, state, federal, company, and required ROCIP project specific documents and retain for the duration of the project or as required by law.

b. Track all injuries and labor hours for the entire project, including subcontractors.
c. Complete incident investigations, including near misses, to include causal factor analysis and corrective actions for distribution to Contractors, Subcontractors, DEN Safety, and DEN Project Manager.
d. Complete daily inspection reports/audits.
e. Maintain training documentation.
f. Maintain drug test results for all employees on the project. Respond to drug test audits within 24 hours.
g. Respond to all other safety documentation audit requests within 72 hours.
h. Complete and submit weekly safety report to DEN.

4.4.4.3 Safety Standards, Rules and Regulations Enforcement

a. Authority to take immediate corrective action, including authority to stop work. The CSR shall be deemed a "competent person" pursuant to OSHA by the Contractor. The Contractor shall ensure that the CSR meets the OSHA definition of 'competent person.'
b. Must have organizational freedom necessary to implement and enforce Contractor and Subcontractor safety and health programs.
c. Implement, maintain, and update, as required, conditions and project site specific safety policies and procedures.
d. Interpret and implement site specific safety policies and procedures.
e. Demonstrate, by example, proper safety behavior.
f. Ensure that Contractor management personnel enact appropriate company disciplinary action in response to unsafe behavior.

4.4.4.4 First Aid/Medical Treatment

a. Ensure first aid supplies are adequate.
b. Lead and facilitate all incident investigations and complete incident analysis reports.
c. Coordinate/facilitate employee injury treatment for all workers on site, ensure modified duty is provided within restrictions, and have minimum weekly check-ins with injured employees.
d. After ensuring treatment of the injured worker and securing the work site, inform the DEN ROCIP Safety Team and DEN Project Manager immediately of all injuries, including first aid.
e. Prior to non-emergency medical treatment, or prior to follow-up care following emergency treatment, provide the injured employee with the Designated Medical Provider list form found in the ROCIP Insurance Manual. Ensure that the injured employee selects an authorized treatment facility. Employees must circle their choice on the document, sign/date, and return to the Contractor.
f. If an employee reports an injury and wishes to deny treatment, or they only wish to receive/administer first aid on site, they must circle that they are denying treatment from a medical provider on the Designated Medical Provider Form found in the ROCIP Insurance Manual, sign/date, and return to the Contractor.
g. File the first report of injury (FROI) with the insurance carrier for all employee injuries, including subcontractor employee injuries. This must be completed within 12 hours of any employee seeking medical care. It is the general contractor's responsibility to ensure that the subcontractors complete the FROI within 24 hours of the incident and obtain a claim number to submit with the final report.

4.4.4.5 General Responsibilities

a. Keep the DEN Safety and Project Manager apprised of any safety related issues that have or may develop.
b. Maintain ongoing proactive, professional, and collaborative safety partnering with DEN.
c. Foster a positive safety culture by leading by example, promoting open communication and trust, providing comprehensive training for all employees on site, encouraging employee involvement, and emphasizing continuous improvement.
d. CSR shall review all safety submittals to ensure they meet contract requirements before they are signed by the CSR and submitted to DEN. All submittals are to come directly from the General Contractor through the project's assigned document control software. Submissions coming directly from subcontractors will not be accepted.
e. Conduct daily work area safety inspections and provide results to DEN Safety upon request. DEN may require the Contractor to utilize a specific form or program.
f. Respond in writing with corrective actions to all written safety issues/notices from DEN within 24 hours, via medium DEN delivers notice.
g. Compile safety statistical information and send it to DEN Safety.
h. Participate in scheduled weekly construction meetings with DEN.
i. Attend quarterly safety meetings scheduled by DEN Safety.

4.5 Subcontractor Safety Representative

Subcontractors of any tier are responsible for complying with all safety requirements addressed in the ROCIP Safety Manual, the Contractor's SSSP, along with applicable Federal, State and Environmental, Safety and Health rules and regulations. In the case of conflict, the most stringent applies.

4.5.1 Subcontractor CSR Qualifications- Less than 50 employees

Each Subcontractor on site with a manpower loading less than 50 employees shall have an employee assigned as a safety representative (this employee may be the foreman) meeting the following minimum requirements:

a. Completed at least an OSHA 10 Construction Outreach Training Course within the last twenty-four (24) months before being assigned to a project.
b. Provide proof of non-expired completion of a Red Cross or approved equal for Cardio–Pulmonary Resuscitation (CPR), First Aid, and Automated External Defibrillation (AED).
c. Employers will designate and affirm that they are a competent person for the work being performed.

4.5.2 Subcontractor Safety Representative Qualifications- More than 49 Employees

When a Subcontractor's manpower loading is equal to or exceeds 50 employees, the Subcontractor is required to have a full time Subcontractor safety representative onsite. This employee may not be the foreman/superintendent but solely dedicated to safety on the project. The qualifications for the full-time safety representative shall meet the following minimum requirements:

a. Completed at least an OSHA 30 Construction Outreach Training Course within the last twenty-four (24) months before being assigned to a project.
b. Provide proof of non-expired completion of a Red Cross or approved equal for Cardio–Pulmonary Resuscitation (CPR), First Aid, and Automated External Defibrillation (AED).

c. Provide proof of completion of FMCSA compliant 2-hour drug and alcohol reasonable suspicion supervisory training.
d. Employers will designate and affirm that they are a competent person for the work being performed.

4.5.3 Subcontractor Safety Representative Responsibilities

Duties of the Subcontractor Safety Representative include the following regardless of manpower loading:

a. Participation in accident and incident investigation facilitated by the CSR involving their work and employees.
b. Have the right and authority to stop any and all hazardous work being performed by their employer whenever imminent danger to life and health exists.
c. Will have the organizational freedom necessary to implement and enforce Subcontractor's safety and health program and report to their own direct supervisor all cases of employees who, in their opinion, are not qualified for the work to which they have been assigned or who engage in unsafe practices.
d. Attend safety meetings scheduled by Contractor or DEN ROCIP Safety Team. Where staffing exceeds 49 employees and the subcontractor has a dedicated safety role as required in Section 4.5.2, that individual will be required to attend the Quarterly ROCIP Safety Meetings. General Contractor CSR is responsible for ensuring their attendance and forwarding notifications to them.
e. Counsel and train the employees when the JHA or Daily Pre-Task Planning does not adequately identify the key hazards and controls of the risk. Update JHA.

4.6 Field Supervisor Requirements

Field supervisors, typically referred to as foremen or superintendents, have the responsibility for overall training, control, and conduct of employees on site. As first line supervisors, their role in the safety and health program is crucial as they set the example by which their employees work.

4.6.1 Field Supervisor Qualifications

All Contractor and Subcontractor field supervisors, both foreman and superintendents, that are not acting as the Subcontractor Safety Representative (see Section 4.5 requirements) must have completed the following training:

a. An OSHA 10 Construction Outreach Program within the last 24 months or OSHA 30 Construction Outreach Program within the last 60 months
b. Provide proof of non-expired completion of a Red Cross or approved equal for Cardio–Pulmonary Resuscitation (CPR), First Aid, and Automated External Defibrillation (AED).

General Contractor Superintendents must also:

a. Provide proof of completion of FMCSA compliant 2-hour drug and alcohol reasonable suspicion supervisory training.
b. Provide proof of completion of Mental Health First Aid training.
c. Attend Quarterly ROCIP Safety Meetings as requested.

4.6.2 Field Supervisor Responsibilities

The field supervisors' safety responsibilities include, but are not limited to:

a. Exercising their authority to stop work when employees are exposed to hazardous conditions or potentially hazardous conditions.
b. Demonstrating safe work practices and making immediate corrections to unsafe employee work practices, including ensuring required PPE is utilized correctly and when required.
c. Developing and leading JHA's, Daily Pre-Task Planning activities, and toolbox talks.
d. Ensuring all required safety plans (Section 6) are submitted and accepted by DEN Safety prior to starting work and contacting their CSR if changes are necessary.
e. Ensuring corrective actions are implemented as directed by the CSR or DEN Safety.
f. Conducting task specific safety training.
g. Performing safety inspections and aiding incident investigations.
h. Implementing the emergency action plan.

4.7 Contractor Project Manager

Project Managers are required to support and encourage safe work practices. Contractor shall remove supervisors from the project who do not obey or enforce safety rules. Project Managers will support their CSR so that they may effectively meet or exceed their responsibilities in this Manual, including empowering them as a Competent person to stop and correct work.

DEN understands that CSRs can only affect safe work practices and safety outcomes to the extent they receive the necessary management support and authority. Ethical conduct is essential for ensuring success while preserving trust, accountability, and integrity. If DEN determines that a Project Manager is not providing the necessary support and directives for safety, DEN may at its sole discretion disqualify and remove the project manager from a project.

4.8 Employee Responsibilities

All employees on DEN ROCIP projects have safety responsibilities and rights which includes but is not limited to:

a. Employees shall use safety equipment, personal protective equipment, and other devices and procedures provided, as directed, and as necessary for their protection.
b. Each employee shall comply with the safety standards, rules, regulations, and orders issued by their Employer and the Contractor.
c. Employees shall have the right to stop work and report unsafe and unhealthful working conditions to appropriate project staff or other officials.
d. Employees shall alert appropriate project staff if they have questions or concerns related to the safety of the work or if they believe they may need more safety training before proceeding.

5

5. Drug and Alcohol Testing and Education Requirements

Denver International Airport (DEN) operates all projects as a drug-free work environment. Contractors and subcontractors will maintain a drug-free environment. All contractors and subcontractors are responsible for testing all employees who work on DEN projects for the presence of drugs or alcohol as well as providing a drug-free awareness program that educates them on the requirements of this manual and any applicable contractor policies.

DEN will pay the cost of pre-project drug testing. Contractors and subcontractors are responsible for payment for post-incident drug testing, reasonable suspicion drug testing, return to duty, or other testing mandated by contractor policy or applicable laws.

Contractors and subcontractors shall test their employees, as appropriate, throughout the construction process including pre-project testing (referred to as pre-employment testing), testing following an injury or accident in accordance with OSHA's guidance, reasonable suspicion, and to the extent necessary to implement drug-free work standards in accordance with DOT requirements or this manual. Contractors are responsible for ensuring that all their subcontractors drug test their employees prior to reporting to work on a project.

The DEN ROCIP Safety Team, Risk Management Department, DEN project management teams, or their representatives have the right to audit the test records at any time to confirm that each employee who works on a project has been drug tested. It is at the Contractors discretion on how to track and maintain records, but they must be able to produce them within 24 hours from time of request.

Contractor and Subcontractor employees on ROCIP projects are hereby advised that full compliance with these policies shall be a condition of employment and continued employment on this or any DEN construction project.

All records regarding employee drug testing will be maintained by the contractors and subcontractors in a manner consistent with Federal, State, and Local law.

5.1 Drug-Free Workplace Policy

Implementation and enforcement of this policy is in addition to applicable Federal, State, and Local laws, rules, and orders.

5.1.1 Prohibition Against Unlawful Presence of Controlled Substances in the Workplace

The unlawful possession, manufacture, distribution, dispensation, possession of controlled substances and/or drug paraphernalia or the illegal use of a controlled substance on the project premises including defined rest areas, contractor parking areas, in company vehicles or while engaged in company activities on the project is strictly prohibited. The use of controlled substances includes being "under the influence".

5.1.2 Sanctions for Violation of the Drug-Free Workplace Policy

Employees who violate the foregoing drug-free workplace policy and engage in the use, sale, possession, or purchase of illicit drugs on the worksite shall be subject to disciplinary action up to and including termination of employment on the project; and, where necessary, restraining orders may prevail.

5.1.3 Contractor Substance Abuse Policy

Contractor shall maintain a substance abuse policy that outlines how they will meet the criteria of Section 5 in accordance with all applicable laws. Contractors may choose to allow subcontractors to participate in or duplicate their Substance Abuse Policy.

5.2 Notification Requirements

Contractors will provide written notice when anyone on site has undergone testing for drugs or alcohol, excepting pre-employment unless the result is non-negative. Notices must be sent to your assigned DEN Safety Team member and ROCIPSafety@flydenver.com.

The Contractor and employer must remove the employee from all DEN construction sites for violation of the Drug Free Workplace Policy.

If the result is negative, except for pre-employment drug tests, the contractor must submit the results prior to the employee returning to the project. See 5.3.1 for the retention policy for pre-employment drug screens.

DEN Safety must be notified of all positive, non-negative, or refusal results (including pre-employment) within 24 hours and include a copy of the results from the Medical Review Officer.

5.3 Required Drug Testing

Contractors and Subcontractors of any tier regardless of enrollment in the ROCIP Insurance program are responsible for testing all employees who work on the project for the presence of drugs or alcohol. ROCIP requires pre-employment, post-incident, reasonable suspicion, and return to duty drug testing as outlined in this section.

5.3.1 Pre-employment Drug Testing

All employees must receive negative results for a pre-employment drug screen before beginning work on the project. DEN will pay for the cost of pre-employment drug and alcohol testing. **Any employee who fails the test or refuses to test will be disqualified from working on any DEN construction project for five (5) years. Retesting of an employee who previously failed or refused a drug test before that duration has passed will not be authorized.** It is the Contractor's responsibility to confirm all project personnel, including subcontractor's employees, meet the qualifications of this Section.

It is up to the Contractor to determine how pre-employment drug testing records will be maintained so that they may be audited by authorized parties while maintaining individual privacy and confidentiality. If audited, the Contractor will be required to demonstrate proof of a negative drug test result within 24 hours. Employees that do not have negative

pre-employment drug tests on file (or if the Contractor cannot produce the records) shall be disqualified from working on DEN construction projects.

Pre-employment drug tests must be on file and auditable for each project. Employees must go through the Contractor orientation and begin work within 30 days of the pre-employment drug test on the initial project and within 120 days of any subsequent ROCIP 5 project. The contractor must reimburse DEN for any drug test performed where the employee does not start within 30 days.

It is the employer's responsibility to request multiple sealed envelopes containing test results for each project that they will be starting work within 120 days of the initial drug test.

5.3.1.1 Drug Screening Authorization Form

The Authorization form found in Appendix I must be emailed to the clinic in advance of the employee visit.

The form must be completed electronically (not handwritten) and the subject of the email line must include employee name, contractor name, and project number.

5.3.1.2 Pre-employment Drug Screening Locations

DEN has a specific list of approved medical providers to select from to accomplish pre-employment drug screening. Please see the full listing on the Drug Screen Requisition and Authorization Form (See Appendix I) with addresses for each location.

ONLY APPROVED LOCATIONS MAY BE USED FOR PRE-EMLOYMENT DRUG SCREENING.

For convenience, DEN provides an on-airport drug screening provider option located near the DEN Badging Office.

PRE-EMPLOYMENT DRUG SCREENING LOCATIONS VARY FROM APPROVED MEDICAL PROVIDERS FOR TREATING INJURED WORKERS.

REFER TO THE ROCIP CLAIMS MANUAL FOR DETAILS ON LOCATIONS FOR TREATING WORKERS COMPENSATION RELATED INJURIES

5.3.2 Post-Incident and Reasonable Suspicion Testing

The cost of post-incident and reasonable suspicion testing shall be borne by the contractor. Testing must be a screen performed by a third party medical provider to the identified testing standards established for ROCIP pre-employment drug and alcohol test as carried out by the designated ROCIP drug testing providers (11 panel- Point of Care drug screen including THC, COC, AMP, METH, OPI, PCP, BZO, BAR, MDMA, OXY, MTD and BAT breath alcohol test).

Utilizing a third party not listed in this manual must be submitted and approved by DEN and outlined in the Contractor's Drug and Alcohol Policy prior to completing the testing. Contractors may not self-perform drug and alcohol tests. Contractor is solely responsible for ensuring compliance with any regulatory authority that may ensure validity of test or rights of the employee.

Employees reasonably suspected of being under the influence of drug(s), or otherwise in violation of this policy, will submit to a drug test as determined by the Contractor or DEN. The reasonable suspicion test should be performed as soon as possible, but no later than 12 hours after the determination to test has been made, or in accordance with federal regulations.

As soon as possible, but no later than 12 hours after an incident, a post-incident drug and alcohol test will be required of any employee whose performance did or may have contributed to the incident. The employer may also deem that a reasonable suspicion drug test needs to be performed based on their training. For the purposes of post-incident drug testing, "incident" is defined as follows:

a. An event resulting in one or any combination of the following:
    - Death
    - Loss of consciousness
    - Injury requiring professional medical treatment
    - Disability which prevents the discharge of normal activities beyond the day of the accident
b. Property damage, resulting in cost of recovery value, for loss of product and/or damage to the property of the ROCIP project or others, without regard to monetary value. This does not apply to damage of incidental value where employee was not in error, e.g. closing the door of heavy equipment and window cracks.

The contractor is responsible for identifying and procuring services for after-hours or weekend drug screening to ensure compliance with the 12-hour testing window from the time a drug screen is deemed necessary.

5.3.3 Return to Duty Testing

Employees will be subject to immediate dismissal for refusal to submit to testing upon return to duty, or if the employee tests positive upon return to duty. Return to duty is defined as an employee previously tested and accepting employment for the DEN ROCIP Project and who has left the project for a period of greater than 14 (fourteen) consecutive calendar days due to a work-related injury or illness.

5.4 Confidentiality

The ROCIP will carefully consider the expectations of individual privacy and confidentiality in retaining records under this policy. Except for the testing laboratory, employer, the general contractor, the ROCIP Safety Team, and the ROCIP Broker, drug test results may not be divulged to anyone without the expressed written authorization of the tested individual, unless legally requested by state or Federal agencies as part of an accident investigation.

6

6. Safety Pre-Planning Requirements

This section of the Safety Manual draws attention to pre-planning requirements unique to this ROCIP program, that may or may not be included in standards of regulatory authorities. The Contractor will ensure they are familiar with this manual in its entirety when considering the safety scope of a project.

6.1 Initial Pre-Planning Requirements

6.1.1 Contractor's Site-Specific Safety Plan (SSSP)

The SSSP is essential to the successful and consistent implementation of the ROCIP Safety Program. The Contractor and each Subcontractor will be responsible for costs to establish and maintain a safety program that meets or exceeds the requirements contained in this manual.

The Contractor's written site-specific safety plan meeting the ROCIP requirements must be submitted for review by DEN within three (3) Days of NTP.

Each SSSP must be tailored to the risks of the project. Some projects involve a variety of complex hazards and require substantial SSSP and Exposure Specific Pre-Planning development with comprehensive guidance.

- See specific Site-Specific Safety Plan requirements in Appendix A.1, A.2, and A.3

After DEN accepts the Contractor's written SSSP, a meeting must be scheduled within ten (10) days to review the plan with the DEN Project Manager and the DEN ROCIP Safety Team.

Review and acceptance of the Contractor's SSSP shall not impose any liability on the Owner, broker, or insurance carrier.

The Contractor's principal onsite project representative, general superintendent, and safety representative must attend a meeting to discuss the SSSP. The Contractor must be prepared to discuss, in detail, the procedures to control the hazards likely to occur during major phases of the work, and the organizational assignments involved in administering the program. The list of required elements below is not exhaustive, and DEN may require the Contractor to provide additional safety planning documents or provide more detailed information before acceptance of the SSSP.

Subcontractors are required to develop their own SSSP and submit it to the Contractor. The Contractor is responsible for reviewing their Subcontractor's SSSP and maintaining the document for DEN ROCIP Safety Team review.

The SSSP must address the following elements and be presented in the exact order below. If additional sections are required or requested, they will appear after the sections listed. See Appendix A.1, A.2, and A.3 for formatting and detailed requirements for each section.

1. Contractor's Commitment to Safety
2. Accountability & Responsibility of Key Project Personnel by position and name
3. Accountability & Responsibility of Key Corporate/District Leadership
4. Identification of Competent & Qualified Persons (See Appendix A.2)
5. Project Level Exposure Assessment (See Appendix A.3)
6. Contractor Daily Safety Inspections
7. Contractor Oversight and Safety Management of Subcontractors
8. Night Work/Alternate Shift Plan
9. Fatigue Management Plan
10. Safety Accountability Program (Reward/Discipline)
11. Training and Instruction List
12. Emergency Action Plan
13. Material Laydown Plans for on and off-site storage
14. Haul Route Maps
15. Project Safety Forms
16. List of Contractor Safety Standards that Exceed OSHA or the Contract Documents

Include each of the following in their own separate submittals from the SSSP:

1. Proposed CSR and Alternate Qualifications and Resume (see 4.3)
2. Subcontractor Onboarding and Job Hazard Analyses (ongoing submittals)
3. New Employee Orientation (submit copy of training materials)
4. Corporate Safety Manual

6.1.1.1 Media and External Communications on DEN Projects

Projects at Denver International Airport (DEN) involve many active partners and present unique communication challenges. Therefore, to provide a unified message, and unless otherwise directed by DEN in writing, DEN will lead all external communications with the media, public, staff, and other stakeholders who may be impacted by a project or a crisis-related event.

If it is determined that contractors or other subject matter experts need to be involved in the communications, that will be arranged on a case-by-case basis. No one outside of DEN should speak on behalf of DEN or DEN projects, including using the DEN logo or branding in communications, without prior approval by the Deputy Manager or their delegated representative, in compliance with the Contract Documents.

To assist in managing crisis communications successfully, the contractor will be readily available to coordinate with DEN and provide all necessary information promptly.

If the Contractor would like to use proactive external communications, the Contractor must comply with the Contract Documents, including obtaining approval from the Deputy Manager or their delegated representative as provided in the General Conditions. DEN requires a 14-day review period of all materials that will be distributed. DEN has the right to refuse any communications and messaging. DEN must review and approve any release of material to the public.

6.2 Pre-Work Hazard Mitigation Planning Requirements

6.2.1 Daily Pre-Task Planning and Job Hazard Analysis

It is the responsibility of the Contractor's project superintendent, competent personnel, and safety representative to ensure a job hazard analysis (JHA) and Personal Protective Equipment Hazard Analysis (PPE-HA) is completed for all work tasks before work commences. The JHA must be used by the field supervisor/foreman to participate in discussions with employees before work commences and at intervals appropriate to the hazard/scope. If new or previously unidentified hazards are identified during the operation, the Contractor must stop the task, modify the JHA, and review the new plan with all impacted personnel. JHAs/PPE-HAs will be reviewed and signed by all employees and field supervision before work activities begin, when the JHA is updated, and at least monthly for the duration of the work.

Daily pre-task planning enables Contractor field supervisors and employees to participate in a discussion regarding the day's activities, associated risks, and the relevant control measures as well as site-specific conditions that may not be addressed in the JHA. Contractor and Subcontractor foremen assigned competent persons, and all employees performing the work shall participate in the discussion to complete a daily pre-task plan.

Both the JHA and Daily Pre-Task Plans will be signed and dated by all employees acknowledging they understand the hazards and how to mitigate them. The daily pre-task plan shall be kept with the foreman during the shift and then retained on file for a minimum of 30 days. JHA(s) shall be kept for the duration of the project.

The daily pre-task plan and JHAs shall be made available on-site to employees and produced upon request by DEN Safety, ROCIP Administrators or Insurers, or DEN project personnel.

- See Appendix B.1 for a sample JHA form.
- See Appendix B.2 for the PPE Hazard Analysis.
- See Appendix B.3 for a sample Daily Pre-task Plan

6.2.2 Subcontractor Pre-Mobilization Meeting

The Contractor will conduct a Subcontractor pre-mobilization safety meeting on or before mobilization to review the Subcontractor's job hazard analysis, high hazard safety plans, discuss site safety issues and requirements, and address any special concerns. The Contractor shall present their approach to managing safety on high-risk tasks. The sample Subcontractor Premobilization Safety Meeting checklist in Appendix E will be used to discuss and document this meeting. All attendees shall acknowledge understanding by their signature, and the Contractor shall retain the meeting minutes for the duration of the project. The following are the minimum required attendees:

- Contractor's project manager, safety representative, and supervisors
- Subcontractor's safety representative and competent persons

Contractors are required to invite their DEN ROCIP Safety Team representative to any premobilization meeting where the subcontractor, or any tier performing the scope of work, has an Experience Modification Rating (EMR) over 1.25 or when requested; however, attendance will be based on scheduling availability.

The Contractor shall submit the signed Pre-Mobilization checklist, meeting minutes, and associated JHAs to DEN prior to subcontractor performing work on site. DEN will review

this documentation, but this review does not constitute DEN's approval or confirmation that the documentation complies with the Contract Documents, this Manual, or applicable law or regulations. However, in the event that DEN determines that the documentation does not conform to the Contract Documents, this Manual, or applicable law or regulations, DEN reserves the right to request revisions to or reject all or part of the documentation.

6.3 Exposure Specific Pre-Planning Submittal Requirements

For all plans in Section 6.3, Contractor will complete the associated Appendix C form listed, provide a scope of work, attach all requested documents included on the Appendix forms, **and attach the Job Hazard Analysis or Method of Procedure** which covers their scope of work. The Appendix forms are meant to highlight common planning scenarios and safety requirements and may not cover all scenarios and where the contractor or DEN deems it necessary, additional planning may be required.

The list of required exposure specific pre-planning requirements in this Section is not exhaustive. DEN may, in its sole discretion, require additional pre-planning or pre-work meeting requirements based on Contractor safety performance, prior adherence to safety plans, safety audit results, previously unidentified risks, work sequencing that may introduce new risks, or any other condition that results in unique safety hazards or increased risk.

Contractor shall incorporate the submittal requirements for this section into the construction schedule. A list of upcoming exposure specific pre-planning submittals will be reviewed in the weekly project meeting.

Submittals in this section are due 14 days prior to the start of the planned work and must be accepted by DEN Safety prior to Contractor commencing scopes of work covered by the submittals.

Submittal "Record Title" shall follow the below format and using Specification number 013510:
6.3.x.*x* – Contractor Company – location and/or work description *(if multiple plan submissions)*

All Exposure Specific Pre-Planning Submittals in this section must be printed, reviewed with and signed by all employees performing the work, and immediately and readily available to all employees on the job site for review. Exposure Specific Pre-Plans must be specific to each crew's scope of work.

6.3.1 Crane Operations

The information below in Section 6.3.1.1 must be provided for each crane being brought to site. Where there is a critical lift (see 6.3.1.2) that documentation must also be included in the submittal. See Sections 6.3.1.3 and 6.3.1.4 for additional documentation for multiple cranes and hoisting of personnel.

6.3.1.1 Lift Personnel, Cranes, & Rigging Information

The following personnel (as defined in ASME B30.5) must be identified for all lifting operations on site. Complete and submit Appendix C.1 and provide supporting training or qualifying documentation. The employer may sign Appendix C.1 or attach a written statement of qualifications and/or competency for each person listed on Appendix C.1.

a. Crane Operators

Crane operators must be certified by an accredited third-party testing entity prior to operating the type of crane assigned. Crane operator certification must be from an accredited organization, such as NCCCO, and their employer must indicate in writing which types and capacities of each crane each operator is allowed to operate. Both documents must be submitted and also be available on the job site.

b. Rigger and Signal Persons

Indicate name and employer of persons responsible for rigging and signaling. Provide rigger and signal person training and qualification documentation and signed statement from employer regarding their qualification.

c. Site Supervisor

Indicate name and employer of the Site Supervisor that exercises supervisory control over the worksite and the work being performed and whose responsibilities include but are not limited to: verifying the area's suitability for crane operations, ensuring the crane is properly inspected and maintained, and overseeing the work of a lift director and other personnel involved in crane operations. They must ensure that the lift plan follows OSHA regulations and that it addresses all potential hazards. Provide training and qualification documentation.

d. Lift Director

Indicate name and employer of person responsible for directly overseeing crane operations and rigging crew activities and provide training and qualification documentation. The Lift Director's employer must deem them qualified and competent in writing.

The Lift Director must be present and watching for all crane lifting operations.

e. Assembly/Disassembly Director

Indicate name and employer of person responsible for directly overseeing crane assembly and disassembly and provide training and qualification documentation. This includes gantry cranes. The Assembly/Disassembly Director's employer must deem them qualified and competent in writing.

f. Rigging

Manufacturer charts indicating capacity and connection requirements for all rigging components must be attached for both critical and non-critical lifts. When contractors are using below the hook custom lifting devices, the design drawings stamped by a Professional Engineer must also be attached.

g. Personnel Not Part of Crane Operations

Describe how personnel not involved in crane operations will be kept away from loads while they are being lifted.

h. Third-Party & Annual Inspections

A third-party inspector must oversee the erection of any crane being assembled on site. All cranes requiring assembly onsite must be inspected and certified by a third-party inspector prior to use.

Where cranes do not require assembly before inspection (i.e. mobile cranes), third-party inspections may be conducted on site before lifting or conducted off-site within the last 3 days prior to mobilization to the worksite.

Any deficiencies noted that prohibit the use of the crane that requires mechanical or technical repair must be corrected prior to any lift activities and a NEW 3rd party inspection showing no deficiencies must be submitted. Corrections signed by the crane owner will not be permitted.

Third Party Inspection documentation showing no deficiencies that preclude operation must be submitted to and accepted by DEN prior to operation. Name of the inspector, third party company/employer, date, and any deficiencies must be legible.

If during operation of the crane an event occurs that could damage the crane or prohibit safe operation, such as shock loading or boom contact, then a new 3rd Party inspection must be completed before continuing crane operations.

Annual/comprehensive inspections as required in 29 CFR 1926.1412(f) must be submitted for the previous three (3) years.

6.3.1.2 Critical Lift Plans

A critical lift plan is required to be completed if:

a. The gross load exceeds 75% of the crane or equipment's total lifting capacity
b. The gross load at any point during the lift exceeds 75% of the crane or equipment's lifting capacity.
c. The lift requires multiple cranes.
d. The load will be swung over or towards occupied areas, unprotected plant, equipment, or utility service.
e. The load will be swung over occupied scaffolding.
f. The lift is performed in proximity to live electrical lines.
g. Hoisting of personnel.
h. Using chains for lifting.
i. DEN deems there is potential for negative impact on airport operations.

The critical lift plan must include:

a. The Critical Lift Plan Form in Appendix C.2.
b. A sketch of the crane set-up location (including outriggers) and radius, as well as the crane's lift chart, and
c. A rigging diagram showing each component and its capacity, the sling angles, and the load calculations demonstrating reduction factors where appropriate.
d. Dimension and capacity tables for all rigging components.

The Critical Lift Plan must be specific for the crane brought on site by the Contractor. If a different model/type of crane is brought on site, then the lift plan is void and another lift plan must be submitted for the specific crane to be used on site.

6.3.1.3 Shared Space Agreement

When two Contractors/Subcontractors have common or shared airspace with the potential for two crane booms and/or associated rigging to collide, a Shared Space Agreement must be developed by the two affected Contractors and submitted to DEN.

- See Appendix C.3 for sample Shared Space Agreement.

6.3.1.4 Hoisting Personnel

Per OSHA, the use of a crane for hoisting personnel may only be used where no other option provides a safer alternative, in accordance with federal regulations. Justification must be provided in writing to DEN and accepted. See Section 10.2.6 for additional requirements. Appendix C.4 must be completed on site by qualified personnel prior to any hoisting of personnel and Section 4 (Weight Calculation Sheet) of the Suspended Personnel Work Platform Checklist must be submitted to the DEN ROCIP Safety Team for acceptance 14 days in advance of scheduled work.

6.3.2 Elevated Work

Preparing and following a written, exposure specific elevated work plan is required for employees working at heights of six feet or more, including during steel erection.

6.3.2.1 Ladders

Complete and submit Appendix C.5, which includes the following information:

a. Type of ladder to be used
b. All manufacturer attachments that will be used
c. Whether the ladder is used for access only, or to perform work at height
d. Overhead hazard protection methods for workers below
e. Additional Risk assessment and Operation planning

6.3.2.2 Mobile Elevated Work Platforms (MEWPs)

Complete and submit Appendix C.6, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. MEWP information and attach User's Manuals
c. Manufacturer approved attachment/features to be used
d. Work surface transition plan
e. Overhead or dropped object hazard protection methods
f. Rescue methods and equipment (attach user's manuals)
g. Additional safety instructions or information as necessary

6.3.2.3 Fall Restraint or Fall Arrest and Leading-Edge Protection

Complete and submit Appendix C.7, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Type of fall hazard identified by the competent person
c. Risk Assessment where phasing of fall protection methods is identified
d. Protection and Prevention (Restraint) methods or equipment to be used and attach User's Manuals

e. Anchor installation height, types of anchors, and relevant installation information based on anchor type
f. Fall clearance required based on the configuration determined by the competent person(s)
g. List of any potential obstructions
h. Overhead or dropped object hazard protection methods
i. Rescue methods and equipment (attach user's manuals)
j. Additional safety instructions or information as necessary

6.3.2.4 Scaffolding

Complete and submit Appendix C.8, which includes the following information:
a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Type of scaffold to be used, party responsible for erection, and design
c. The person responsible for ensuring scaffold is ready to use per design/manufacturer
d. Whether the scaffold is designed for fall arrest/restraint attachments
e. Overhead or dropped object hazard protection
f. How employees will be protected from falls when loading material onto decks
g. How material will be lifted to scaffold decks
h. Scaffold capacity
i. Scaffold dimensions
j. Maximum allowable live loads for one span and total for one bay
k. Attach User's Manuals, Professional Engineer designs, load calculations, etc.

6.3.2.5 Other Work at Height

The Contractor will submit for acceptance a Method of Procedure, to include competent person(s) and training documentation for all employees working at height and User's Manual's for all fall protection/restraint systems used.

Contractor shall set up a meeting with the DEN ROCIP Safety Team member(s) assigned to the project to discuss the details of the exposure specific elevated work plan prior to commencement of work activity with at least a 72-hour notice.

6.3.3 Lock-Out Tag-Out

6.3.3.1 Lock-Out Tag-Out (LOTO) Method of Procedure (MOP)

A written lock-out tag-out Method of Procedure (MOP) is required for all applicable work and is to include controls for any type of stored energy. See Section 10.15 for additional requirements.

6.3.3.2 Electrical LOTO MOP

Complete and submit Appendix C.9, which includes the following information:
a. List of authorized, affected, unqualified, or personnel entering arc flash boundary and attach supporting documentation
b. Name supervisor responsible for ensuring all employees have applied their locks

c. List of all contractors or employers working under the LOTO procedure
d. Electrical systems being locked out and number of isolation points
e. Energy and boundary information for the electrical system under LOTO
f. Information for equipment used during LOTO
g. Isolation point locations, proximity to work, and effect on other systems
h. Information on potential back up power sources
i. Confirmation of coordination, communication, and required attachments
j. Contractor's full Method of Procedure in compliance with CPL 02-00-147 must be attached.

6.3.3.3 Non-Electrical Hazardous Energy and Water Systems LOTO MOP

Complete and submit Appendix C.10, which includes the following information:

a. List of authorized, affected, unqualified, or personnel entering arc flash boundary and attach supporting documentation
b. Name supervisor responsible for ensuring all employees have applied their locks
c. List of all contractors or employers working under the LOTO procedure
d. Impact to areas outside of project limits
e. Isolation point details and effect on other energy sources and how they will be controlled
f. Systems that could be back fed
g. Controls implemented other than lock-out
h. Special tools or equipment
i. Other pertinent details contractor deems necessary
j. Confirmation of coordination, communication, and required attachments
k. Contractor's full Method of Procedure in compliance with CPL 02-00-147 must be attached.

6.3.3.4 Lock-Out Tag-Out Coordination Meetings

The Contractor must hold a coordination meeting with all affected Contractors and Subcontractors, of any tier, at least 24 hours in advance of a multi-employer lock-out.

For all lock-out- tag-out activities, the Contractor performing the LOTO must hold a coordination meeting to review the applicable parts of the MOP with all employees placing a lock the morning of the work.

See Section 10.15 for requirements.

You must coordinate with your assigned DEN ROCIP Safety Team member at least 72 hours in advance of the multi-employer LOTO meeting or the employee-level on site coordination meeting. They may attend the meeting and/or monitor the actual lock-out.

6.3.4 Utility and Tension Cable Damage Prevention Plans

The Contractor shall provide a written utility damage prevention work plan to DEN for acceptance prior to coordinating a pre-work meeting. Utility damage prevention plans will be submitted for all earthwork, including penetrative work, and cutting or drilling of

concrete slabs, both exterior and interior, or on interior walls. The work plans must be on site with the crew performing the work.

6.3.4.1 Utility Damage Prevention Plan – Ground and Surface

Complete and submit Appendix C.11, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Methods of utility locates completed
c. Verification of utility locations via potholing or other non-destructive means, marking of utilities and depths complete, and documentation to support
d. Verification if a utility company must be present during excavation
e. If any utilities need to be addressed prior to work start
f. Method of soil or concrete/asphalt disturbance
g. Verification of utility marking preservation and refresh
h. Third-party locate information, means/methods, and technician information
i. Site-walk readiness evaluation and sign-off by General Contractor Superintendent
j. Confirmation that utility damage prevention site walk was complete with DEN Safety (post-submittal signatures)

6.3.4.2 Utility and Structure Damage Prevention Plan – Walls and Floors (includes tensioning cables)

Complete and submit Appendix C.12, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Utilities and structural components in the work area, verifying their status for protection, removal, or re-routing
c. Information of surface being penetrated, cut, or demolished
d. Verification of visual inspection and utility markings on slabs/walls where applicable
e. Site-walk readiness evaluation and sign-off by General Contractor Superintendent
f. Work methods
g. Verification for potential public or adjacent worker exposure, and a completed plan if applicable
h. Third-party locate information, means/methods, and technician information
i. Confirmation that utility damage prevention site walk was complete with DEN Safety (post-submittal signatures)

6.3.4.3 Pre-Work Utility Damage Prevention Site Walk Requirement

The Contractor shall coordinate a pre-work meeting for all work covered under a Utility Damage Prevention Plan, with the DEN ROCIP Safety Team and other responsible parties, to walk the excavation or work area and review applicable documentation before work begins. You must coordinate with your assigned DEN ROCIP Safety Team member at least 72 hours in advance.

6.3.5 Trenching

In addition to the Utility Damage Prevention Plan – Ground and Surface, the Contractor shall provide a written Trenching Work Plan to DEN in advance of anticipated work for all

trenches over 4ft in depth or where the contractor's competent person has determined protective measures may be necessary.

6.3.5.1 Trenching Work Plan

Complete and submit Appendix C.13, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Trench dimensions and if utilities will cross the dig area
c. The protective system(s) selected for the trench
d. How access to the trench will be provided
e. How the edge of the trench will be protected
f. Indicate equipment/tools in the surcharge area and manufacturer considerations or limitations to loading the surcharge area
g. Review of potential water infiltration or hazardous atmospheres and required equipment
h. Required attachments verification
i. Design and system components that will be used

6.3.6 Confined Space

6.3.6.1 Confined Space Identification and Entry Plan

The Contractor or Subcontractor(s) performing confined space entry shall submit an exposure-specific Confined Space Entry Plan using Appendix C.14 for acceptance, which includes the following information:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. Verification of required documents are attached, including a Confined Space Entry Daily Permit (see Appendix C.15 for an example)
c. Methods used to prevent unauthorized entry
d. Identification of potential or known hazards and attached JHA or other required Exposure Specific Plans from Section 6.3 of this Manual
e. Identification of safety controls and equipment to be implemented
f. Identification of rescue type and Off-site rescue party information where applicable
g. Step by step rescue procedures
h. List of Confined Space Requirements

If the Contractor is expecting to use an outside agency to perform rescue they must have and make available a written agreement between the agency and the Contractor. The Contractor will obtain written verification from the rescue service, prior to each entry that the rescue team will be readily available to respond in a timely manner.

6.3.6.2 Entry Notification Requirements

For entries into permit required confined spaces lasting four hours or more, or for entries into the Utility Tunnel, the four Denver Fire Department Red Chiefs at DEN must be informed by email and attaching Appendix C.14.

The following emails may change and are provided here for Contractor's convenience only:

- Ryan Nuanes: Red Chief (A) Ryan.Nuanes@flydenver.com
- Randy Stewart: Red Chief (B) Randy.Stewart@flydenver.com
- Mark Allen: Red Chief (C) Mark.Allen@flydenver.com
- Donn Bower: ARFF Training Chief Donn.Bower@flydenver.com
- Alex Paez: Division Chief Alberto.Paez@flydenver.com

6.3.6.3 Denver Fire Department Confined Space Permit

Contractors must also obtain a confined space entry permit from the Denver Fire Department prior to entering a confined space. This permit must remain valid for the duration of the project and be posted at or near the confined space. Contractors are responsible for meeting the requirements needed to obtain the fire department permit. A permit for a single location, is good for only one entry location, not any/all locations at DEN. If multiple entries are being made at various locations on DEN property, you must select multiple locations for your permit type.

6.3.7 Tunneling

There is no required Appendix form for this Exposure Specific Plan. A Method of Procedure must be submitted for all tunneling. See Section 10.18 for requirements that may exceed OSHA or other regulatory requirements. The submittal must include:

a. A site plan indicating where all equipment will be set in relation to shafts, launch areas, and designated break areas
b. Personnel list and roles and responsibilities and required training documentation
c. Communication methods
d. Site control procedures including check-in/check-out, ground support, engineered shaft design, fire prevention and control, emergency egress and other procedures
e. Ventilation requirements and supporting calculations
f. Illumination requirements
g. Air monitoring requirements
h. Other applicable sections as necessary, such as potentially gaseous atmosphere procedures, dewatering, etc.
i. Attach all user's manuals for safety related equipment.

6.3.8 Silica Exposure and Slurry Control Program

Contractors and/or Subcontractors shall submit a written silica exposure and slurry control plan in addition to their own employees and subcontractors, Contractors are expected to protect nearby workers and the public from silica exposure.

The contractor must use Appendix C.16, which includes the following information:

a. Indicate materials that are the source of silica and the tasks involving exposure
b. Indicate the respiratory protection required if applicable and other required PPE
c. Detail how slurry will be controlled and cleaned
d. Indicate how employees will clean work areas, equipment, and selves
e. Indicate if additional Public and Adjacent Worker protection plan is required (Appendix C.22)
f. Select portions of OSHA 1926.1153(c)(1) (Table 1) to be used

g. Where contractor is not using Table 1 provide a description of air monitoring to determine silica levels generated and provide a description of:
    i) Work practices to reduce dust
    ii) Engineering controls or respiratory protection used
    iii) Exposure assessment and air monitoring results

6.3.9 Demolition Plans for Employee and Adjacent People or Property Safety

Contractors shall develop a demolition safety plan. Contractors must also submit their PPE Hazard Analysis (Appendix B.2) in conjunction with their Demolition Plan.

Complete Appendix C.17, which includes the following information:

a. Where structural demolition occurs, the Contractor's plan must include attachments that meet OSHA and other Contract Document requirements. Attach engineered plan where applicable.
b. Assessment of hazards and how they will be mitigated and include PPE hazard assessment in Appendix B.2
c. Indication of potential health hazards
d. Indication of utilities in the area and attach Appendix C.11 or C.12 as applicable
e. Indicate any isolation methods used on utilities and attach Appendix C.9 or C.10 as applicable
f. Indicate that pre-demolition of markings is complete
g. Indicate there is potential for public exposure and attach Appendix C.22 if applicable
h. Include any additional required attachments

6.3.10 Ventilation

Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist, or may, or are produced during construction work and ventilation is used as an engineering control method, the system shall be installed and operated to prevent dispersion into the air of dusts, fumes, mists, vapors, and gases in concentrations causing harmful exposure. Exhaust filtration and/or dust or vapor collection systems will be implemented as prescribed by manufacturer, OSHA, or for indoor operations.

Appendix C.18 must be completed for all ventilation operations and submitted which includes the following:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation
b. List of atmospheric hazards
c. Type of ventilation
d. Dimensions or volume of space being ventilated or indication of open air
e. Type of space being ventilated
f. Exhaust location
g. Equipment information
h. Ventilation calculations
i. Confirmation of required attachments

6.3.11 Respiratory Protection

Appendix C.19 must be completed for all work operations requiring the use of a respirator of employees wear them voluntarily and submitted which includes the following:

a. List of competent, qualified, authorized, or trained personnel and attach supporting documentation, including medical surveillance and fit testing.
b. Indicate exposure type
c. Indicate respirator type and specific manufacturer information, requirements, and user's manuals for equipment
d. Attach air monitoring results
e. Describe how respirators will be cleaned and stored
f. Provide additional manufacturer information where utilizing self-contained breathing apparatuses or supplied air respirators, including user's manuals.

6.3.12 Robotics in Construction

Contractor will submit a Method of Procedure for acceptance by DEN. The MOP will include all hazards and built-in engineered controls, administrative controls and PPE required to safely operate robotic equipment. User Manuals must be attached.

6.3.13 Hot Work and Wet Work Protection

6.3.13.1 Hot Work Permits

Contractors shall obtain a hot work permit from the Denver Fire Department (DFD), to be renewed annually, and submitted to DEN prior to hot work taking place. Each contractor or subcontractor must obtain their own DFD permit. See Section 10.19 for on-site daily permitting requirements for hot work and Appendix C.20 for a sample Hot Work Daily Permit Checklist with minimum requirements.

6.3.13.2 Wet Work Permits

See Section xxx for on-site daily permitting requirements for wet work and Appendix C.21 for a sample Wet Work Daily Permit Checklist with minimum requirements.

6.3.14 Public and Adjacent Worker Protection Plan

All construction sites are considered an attractive nuisance which naturally draws the public to the site out of curiosity. Where there is interaction with or potential for exposure to members of the public or adjacent workers not engaged in work for the project, the Contractor shall complete Appendix C.22 which includes the following information:
a. Indication of potential exposures from planned work
b. Protection methods to be implemented to prevent or mitigate the effect of exposures
c. Written plan detailing how protective methods are to be implemented

6.3.15 Traffic Control

6.3.15.1 Method of Handling Traffic (MHT)

MHTs shall be developed in accordance with the Colorado Department of Transportation and the Manual of Uniform Traffic Control Devices (MUTCD) for all locations, including but not limited to roadways, airside including vehicle service roads, baggage tunnels, and as necessary for safe pedestrian movement. All MHTs must be submitted for review and acceptance by DEN. MHTs shall be provided that will be utilized for phasing and short duration closures that are regulatorily compliant and also include the following:

a. The type, number, and location of all traffic control devices and signs required for the work. Contractor will also describe and/or illustrate all safety measures to be used during traffic control set-up, traffic switches, and worker protection for short duration work. This shall include the following as applicable and necessary for ensuring worker and public safety:
    i. Use of truck-mounted attenuators (TMAs) and Uniformed Traffic Control officers (UTCs).
    ii. Temporary and/or worker lighting locations
    iii. Specialty and Variable Message Board signage
    iv. Driver visibility limitations where known or predicted.
    v. Access provisions to private property, businesses, and activities.
b. List of personnel that will staff traffic operations, including Contractor on-site representative, Traffic Control Supervisor, and Flaggers. Include copies of TCS and Flagger certifications.
c. Pedestrian traffic control where applicable, as well as means of mitigating any adverse effect upon individuals requiring accommodations to services under the Americans with Disabilities Act.

6.3.15.2 Haul Routes Signage

Haul routes will be appropriately communicated to all drivers with the expectation that they do not deviate from the route. All drivers (not just delivery drivers) going to and from the site must have a paper copy of the haul route in their vehicle at all times, unless under escort. A copy of the route map must be submitted to DEN prior to work commencing and as updated.

Airfield haul routes must have appropriate signage, in type and count, to safeguard against surface deviations and an MHT must be submitted to DEN for acceptance.

6.3.15.3 Adjustments for Safety

If accepted haul and access routes, traffic plans, or MHTs are observed to cause traffic or other safety issues, then Contractor will propose a corrective action plan or alternate plan to DEN within 24 hours or take immediate corrective action where life safety warrants such response.

6.3.16 Heavy Equipment & Trucking

6.3.16.1 Heavy Equipment (HE) Utilization List

All operators need access to the user's manual for the equipment they will operate and understand the limitations of operation and how to perform an inspection. They must also understand the necessary maintenance to maintain equipment for safe and productive operation. Operators should be familiar with the blind spots surrounding each piece of equipment he or she operates, as it can drastically vary, and should be sensitive to the fact workers and other objects cannot be seen in certain areas. Pedestrians must also understand where they may not be visible to operators. This requirement excludes MEWPs and cranes.

All contractors must complete Appendix C.23 and submit to DEN for review, which includes the following:

a. Operators' names and equipment they are authorized to operate
b. Make and model of all heavy equipment that will be on site
c. Maximum working slope, if applicable
d. Maintenance inspection frequency
e. Required attachments include operator's manuals, daily inspection checklists for each type of HE, certification/training/evaluation documentation from employer, rigging component charts and connection requirements when lifting with HE, and blind spot diagrams (attach to the list) (example): https://www.cdc.gov/niosh/motor-vehicle/constructionequipmentvisibilitydiagram/index.html

6.3.16.2 Internal Traffic Control Plan (ITCP)

The purpose of ITCP is to separate—to the extent possible—construction vehicles and equipment from workers on foot and minimize backing. It is the responsibility of the General Contractor to create a master ITCP for all contractors on site to follow. This plan is required for all civil construction work.

There is no Appendix form for this submittal. Provide detailed site maps with the following elements:

a. designated traffic flow paths, indicating signage and devices for pedestrian and vehicle movement,
b. designated loading and unloading areas,
c. designated worker access points,
d. designated zones for no workers on foot,
e. pedestrian work zones and congregation areas (e.g. bathrooms and rest areas),
f. equipment and material staging zones,
g. and buffer areas between workers and moving vehicles.

Provide a written system, designating roles and responsibilities, for monitoring and adjusting the plan based on changing site conditions and how the ITCP will be communicated to employees initially and when changes are made. Also include procedures that will be used on site for backing up equipment and trucks safely.

6.3.17 Falsework, Formwork, and Shoring

Contractor must submit designs or manufacturer specifications, wherever falsework, formwork, or shoring must be engineered to support fresh concrete, existing structures, or be used on any load-bearing components to ensure stability and public safety.

7

7. Safety Training and Meeting Requirements

7.1 Weekly Joint Safety Meeting

The CSR and designated members of the contractor's staff must participate in scheduled weekly safety meetings. This requirement shall be met during weekly construction progress meetings unless DEN directs otherwise. The Contractor must complete the Weekly Safety Look-Ahead and Progress Review Form (Appendix D) and be prepared to review safety items for the week, including but not limited to, incidents and injuries and their corrective actions, resolution of safety issues, and upcoming safety submittal requirements.

CSR will prepare and submit Appendix D to DEN Safety and DEN Project Manager weekly, at least 24 hours in advance of the scheduled owner meeting.

7.2 Employee Orientation Training

One of the requirements of the Contractor and their safety representatives or designees is to conduct a complete safety orientation for anyone who will be working/entering the construction site including but not limited to employees, subcontractors, inspectors, and DEN representatives and employees. Orientation is required before an employee can enter the construction area. The purpose of the orientation is to provide employees with an awareness of what they can expect and what is expected of them on site. At a minimum, the orientation will include:

a. Information to acquaint the employee with special safety requirements of the work site, security, and traffic regulations.
b. Employer and employee rights and responsibilities for Safety as described in Section 4 and any additional contractor expectations or requirements
c. Description of the nature of the project
d. Drug free workplace and substance abuse testing
e. Accident reporting procedures, Medical Provider List, Emergency Response (303-342-4211 for 911)
f. How to report unsafe acts or conditions, including SeeSay and assigned DEN ROCIP Safety Professional's phone and email contact information
g. Site Safety Accountability Program
h. Personal protection equipment requirements
i. Hazards prevalent for the work the employees in attendance will perform (fall protection, trenching, ladder usage, scaffold safety, etc.)
j. Hazard Communication Program
k. Emergency Evacuation Procedures
l. Good housekeeping practices and ongoing maintenance requirements
m. Job Hazard Analysis (JHA) & Exposure Specific Pre-Planning from Section 6.3
n. Proper decorum, public interaction, and media protocols
o. Return to work programs, incident (to include near misses) reporting procedures, workers compensation requirements, and medical provider list
i. Other _____

All employees will complete the Project Safety Orientation Training Acknowledgement Form in Appendix F at the end of the orientation training session and provide the sealed results of their pre-employment drug tests. If an employee does not want to provide a copy of their drug test results, the general contractor will provide their name and employer to DEN Safety and notify them that they will not be allowed to work on any DEN project. The contractor must maintain a copy of the completed form for the duration of the project and provided to DEN upon request.

7.3 Tour & Visitor Guidelines

Contractor will notify the DEN Project Manager and DEN Safety representative of all site visitors. DEN may at its sole discretion allow or disallow visitors to enter an active construction site.

Non-construction personnel, visitors (including contractor personnel not assigned nor performing work for the project), or groups shall always be accompanied by an authorized representative of DEN, the Contractor, or other designated person that is familiar with the site hazards and properly badged on the project. All visitors must wear the required PPE and display a visitor's badge.

Tours that do not involve technical inspections shall be approved seven (7) calendar days in advance through the DEN Project Manager and assigned DEN Safety Professional. Minors may not tour construction sites.

Before entering the project, all visitors shall receive a brief safety orientation from the CSR on site-specific hazards expected to be encountered during the tour or visit. The number of escorted people on tours should be proportionate to the degree of the hazards and operating space involved but may not exceed six (6) visitors per authorized group representative.

The "Waiver and Release" provided in Appendix F shall be signed by all visitors prior to accessing the project. This applies to Contractor employees touring the site and not assigned to the project.

7.4 Regulatory Training

The Contractor is responsible for providing or ensuring effective training has been provided for all employees, including subcontractor employees, working on the project as required by any regulatory authority having oversight of the work or employer and as outlined in this Manual.

7.5 Weekly Safety Toolbox Meeting

Every employee on site will attend a weekly safety toolbox meeting. Contractors must document the toolbox meeting, including attendee signatures, and maintain a copy onsite for review. At its discretion, DEN may require the Contractor to submit the weekly discussion and roster.

7.6 Supervisory Safety Meetings

The Contractor must conduct regularly scheduled (at least monthly) supervisory safety meetings for all levels of job supervision.

The Contractor will maintain a summary report containing subject matter and signatures of all attendees and submit it to DEN by the first Tuesday of each month.

7.7 ROCIP Safety Meetings

A meeting may be held to review project safety performance with the DEN Project Manager and staff and Contractor's Project Manager and Safety Representative on either a monthly or quarterly basis, as determined necessary by the DEN ROCIP Safety Team.

7.8 ROCIP Quarterly Safety Meetings

The DEN ROCIP Safety Team hosts quarterly meetings with all CSRs and other contractor personnel as requested, such as the project manager or superintendent. The meeting is held to discuss and present on a variety of topics including, but not limited to, construction safety trends, lessons learned across the program, or to provide professional learning opportunities. Attendance is mandatory and advanced notice is provided.

8. Safety/Loss Reporting and Inspection Requirements

8.1 Post-Incident Reports

8.1.1 Incident Notification

The Contractor shall report all incidents by phone immediately to the DEN Project Manager or designee and the assigned DEN ROCIP Safety Team member.

8.1.2 Investigations, Reporting, and Review Requirements

The final investigative reports and claim notifications as described in Sections 8.1.2.1 and 8.1.2.2 and the ROCIP Claims Manual will be completed in Riskonnect, the City and County of Denver's Risk Management Incident System (RMIS.) All form fields must be completed, and all supporting documentation described in Sections 8.1.2.1 and 8.1.2.2 must be attached including the written narratives. The electronic form fields do not replace the CSR's professional report to include a full narrative. Please refer to Appendix H for list of information fields that are required. Failure to complete reports within contractual timelines indicated may result in disqualification of CSR, issuance of a stop work order for the project, issuance of a Non-Conformance Report as indicated in Technical Specification 013510, and/or other corrective actions.

The Contractor will be provided with log-in credentials to complete the reports online and may contact any member of the DEN Safety or DEN Risk team via email or phone for log-in information and questions.

8.1.2.1 Injury, Near Miss, Vehicle/Pedestrian Deviations, Vehicle or Equipment Accidents, and Live Utility Hit Investigations and Reports

All incidents that can or have impacted individual safety, whether they involve injury or not ("near-miss") must be reported to the DEN ROCIP Safety Team and DEN Project Manager immediately. The CSR and Subcontractor Safety Representative CSR shall immediately investigate and document the incident. The preliminary report must be completed and emailed to the DEN ROCIP Safety Team and Project Manager within twenty-four hours of the incident and include the employee's name, badge number if applicable, employer name, and summary of the incident as currently known. Where an employee has reported a non-emergency care injury, Contractor must also attach a copy of the signed Designated Medical Provider List indicating a choice of clinic or declination of care.

The final investigative report and supporting documentation is due five (5) working days after the date of the incident or near-miss incident. All costs associated with work stoppage, delays in completion of work, increased costs resulting from the incident, investigation, and implementation of corrective actions, including completing reporting and review requirements shall be borne by the Contractor.

Most incidents and near-miss incidents relate to system failure rather than individual behavior. The Contractor must have an open and fair reporting system so that employees can report problems without fear of reprisal. Lessons learned from accidents, incidents and near-miss incidents will be shared with employees.

- See incident investigation form fields in Appendix H, which must be input into the online form described in 8.1.2.
- See Section 9.2 for Lesson Learned Program Requirements
- See Section 9.4 for Employee Near Miss Reporting Program Requirements

(1) The CSR shall provide a professionally written narrative with the following elements:
   a. Facts of the incident including but not limited to date, time, names of employees involved, witnesses, company, job title, and injury or damage specifics
   b. Sequence of events before, during, and after the event
   c. Analysis of events and list of all causal factors, both human and organizational
   d. Corrective actions implemented or to be implemented, including responsible parties and due dates or completion dates.
   e. Photos of the scene and safely conducted reenactment photos are REQUIRED.
   f. Diagrams or drawings of the location, including multiple, if necessary, to describe the sequence of events

(2) The Contractor shall also provide evidence of employee training given prior to the incident and proof of compliance with the ROCIP Safety Manual, including but not limited to:
   a. Signed Orientation Acknowledgement form
   b. Signed JHAs and daily pre-task plans
   c. Proof of any relevant regulatory training
   d. Copy of pre-employment drug screen
   e. Copy of post-accident drug screen (when required)
   f. Copies of Subcontractor Safety Representative required training as outlined in Section 4.4.1 or 4.4.2 if incident involved subcontractor employee
   g. Designated Medical Provider List indicating selected clinic or declination of care, signed by injured employee.
   h. Claim Number from insurance carrier
   i. Copy of the First Report of Injury (FROI) filed with the insurance carrier (See ROCIP Claims Guide for filing instructions.)
   j. Rule 6 Modified Duty Offer Letter (see Section 8.2)
   k. Signed Witness statements where applicable

8.1.2.2 Property Damage or Other Non-Injury Claim Events

The Contractor shall submit a professionally written narrative within 14 calendar days of property damage or any employer on-site filing a claim, other than injury, with the following required elements:

a. Facts of the claim including, but not limited to, date, time, names of employees involved, witnesses, company, job title, damage specifics
b. Sequence of events that contributed to the damage or claim
c. Analysis of event and list of causal factors
d. Corrective actions implemented or to be implemented to prevent recurrence of loss or damage
e. Situational, reenactment, and/or damage photos

f. Diagrams or drawings of the location, including multiple if necessary, to describe the sequence of events
g. Evidence that applicable ROCIP requirements have been met.

8.1.2.3 Claim and Incident Review Process

For any Workers' Compensation claim estimated to be over $2,500, any near miss that arises to potential for severe injury or catastrophic loss, any utility or tension cable strike, any other ROCIP claim estimated to be over $25,000, or when notified by DEN, the Contractor shall meet with DEN Safety, DEN Risk, and DEN Project Manager within 7 days to review the findings of their investigation and resolutions, including ROCIP compliance and mitigation efforts to prevent similar occurrences.

The Contractor's and Subcontractor's (if applicable) Project Manager, Safety Representative(s), involved supervisor/foremen and employee(s), and witnesses may be required to attend and present investigative findings, causes, underlying factors, and corrective actions. Contractor may be tasked with further fact-finding or plan development to satisfy safety and risk preventative measure requirements. Contractor may need to implement further corrective actions beyond those that were initially accepted as part of the contractor's independent investigation and report.

8.2 Return to Work Program

Per the Department of Labor, stay-at-work/return-to-work (SAW/RTW) strategies and programs succeed by returning injured workers to productivity as soon as medically possible during their recovery process. DEN requires each contractor to have a Return-to-Work Program as described in Section 2.6 of the ROCIP 5 Claims Manual.

If the employer believes they cannot accommodate the employee's medical restrictions from their treating physician, they must provide a written notice to DEN Safety for evaluation with an explanation of why they cannot provide accommodations. If DEN Safety does not agree with the employer's assessment, a meeting will be held to discuss compliance with this provision and/or potential resolution.

8.3 Project Injury Report

By March 1st every year, the Contractor will provide a summary of all OSHA 300 injury logs reported for the project through the RMIS. This report includes project information and project totals including all subcontractors. If the project falls under multiple OSHA reporting periods, the contractor will report totals for each year by the March 1st date and during close-out documentation period if it falls before.

NUMBER OF CASES
Total Number of deaths
Total Number of cases with days away
Total number of cases with job transfer or restrictions
Total number of other recordable cases

NUMBER OF DAYS
Total number of days away from work
Total number of days of job transfer or restriction

EMPLOYEES
Annual average number of employees on the project
Total hours worked by all employees last year

8.4 Jobsite Safety Inspections

The Contractor's Safety Representative will conduct and document daily jobsite inspections of work site to evaluate compliance with SSSP, ROCIP Safety Manual, and regulations and identify and correct jobsite hazards and unsafe work practices. CSR must ensure that work practices are observed for a duration that allows for behavioral based safety observations to be made for all workers, including subcontractors. Inspection reports must be documented daily, and the results reviewed at the weekly meetings with DEN.

A member of the Contractor's management group (Project Manager, Field Supervisor, Foreperson, etc.) must attend and participate in at least one jobsite inspection per week. Attendance must be documented.

Contractor may be directed to use a software program or Software-as-a-Service (SaaS) solution that will enable the Contractor to perform jobsite safety audits and measure the effectiveness of their safety programs. If directed to use the software, Contractor would not incur any costs for the software.

Where subcontractors have an EMR over 1.25, the Contractor Safety Representative will perform focused safety audits once per week, observing their work practices for at least 30 minutes, providing feedback for improvement, and documenting the results of the inspection.

8.5 DEN Safety Observations and Contractor Response Requirements

DEN Safety and their Broker and Insurance partners will at their discretion and chosen timeframe perform safety assessments of the project. It is a best practice during these observations to have the Contractor Safety Representative and/or Superintendent in attendance. Following inspections, they will provide written notice of work activities that were or are not in compliance with the established safety policies and procedures via Autodesk Construction Cloud (ACC) by creating safety issues in the Build module for Contractor response. If the Contractor receives a notice, they must immediately correct the hazard, document the corrective action, or reason for delayed abatement, and reply to the issue in ACC within 24 hours. Contractor must provide photo or document evidence of corrective actions implemented and attach them in ACC. Contractors will not incur costs for the software.

8.6 OSHA Inspections

Inspections by OSHA compliance officers may be initiated for many reasons, including employee complaints, serious or fatal accidents, special emphasis programs or planned audits. When a Contractor or Subcontractor receives notification of an inspection, contact the DEN ROCIP Safety Team and Project Manager so a representative of the DEN ROCIP Safety Team can be present during the opening conference, inspection, and closing conference. It is the policy of DEN to fully cooperate with OSHA compliance officers.

Contractor must submit to DEN any OSHA inspection findings, citations, or correspondence to and from OSHA related to the project. This includes all annual injury reporting conducted for the project (OSHA 300 Logs).

8.7 Miscellaneous Inspections

Inspections may also be conducted by other interested DEN parties such as but not limited to Environmental, Operations, or Denver Fire Department. Deficiencies found regarding life safety or that will negatively impact DEN operations must be corrected immediately.

9

9. Additional Safety Program Requirements

9.1 Safety Awareness

Communication and awareness are essential to developing a proactive project safety culture. The goal of the safety awareness program is to raise awareness of day-to-day risks, hazards, and exposures in the field and drive employee engagement. The Contractor is responsible for developing and submitting innovative ideas for improving safety awareness. Safety awareness program initiatives have included:

a. Project specific safety stickers
b. Volunteer safety stewards
c. Safety posters
d. Guest speakers for employee meetings
e. Banners addressing specific hazards on the project
f. Whiteboards for employees to identify the biggest risk for the day
g. Employee-led safety committees
h. Foremen and Superintendents completing Safety Leadership training
i. Methods for employees to report safety hazards on the job site

9.2 Lessons Learned

The goal of this program is to share and use experience-based information to promote the recurrence of desirable activities and prevent the recurrence of undesirable activities. All Contractors and Subcontractors are expected to plan and execute their work based on best available practices. Through their work experiences, all personnel are expected to identify opportunities for improvement and best practices and share these with their colleagues using the form in Appendix H. Actions taken as a result of a Lesson Learned may include:

a. Corrective actions taken as a result of the analysis of an actual experience
b. Preventive actions taken to prevent a negative situation from occurring
c. Improvement actions taken to improve the efficiency and safety of operations

Lessons Learned Programs include two basic processes:

a. A development process that includes identification, documentation, validation, and dissemination of a Lesson Learned.
b. A utilization and incorporation process that includes identification of applicable Lessons Learned, distribution to DEN Safety, identification of actions as a result of the Lesson Learned, and follow-up to ensure that appropriate actions were taken.

9.3 Stretch and Flex Program

The Contractor will implement a stretch and flex program that is conducted prior to the start of each shift and after the lunch break where all employees will participate, to include Subcontractors. Contractor shall ensure program is developed in accordance with sound ergonomic or medical guidance and that proper safe practices are followed during stretching activities. Contractor will inform employees that they should exercise judgment to the extent that their physical capabilities allow, that they should not perform motions that may aggravate previous injuries or other physical conditions, and to consult a medical professional when necessary, prior to participating.

9.4 Employee Near Miss Reporting Program

A “near-miss” is an unplanned event that did not result in injury, illness, or damage, —but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage. Although human error is commonly an initiating event, a faulty process or system invariably permits or compounds the harm and should be the focus of improvement.

Near-miss report forms or accessible tools are to be made readily available onsite to employees to report near-misses. Contractor will also display information on the DEN SeeSay application that allows employees to report hazards anonymously. It is the responsibility of the Contractor to encourage near miss reporting, investigate reports, and report findings to DEN.

- See Section 8.1 for Contractor investigation and reporting requirements

9.5 Safety Accountability Program

Accountability is the key to achieving superior accident prevention results. The first step in this process is to recognize that accident prevention is a management responsibility and must be managed just like productivity and quality. Responsibilities must be defined in Section 2 of the Contractor’s SSSP and measured. The best safety accountability programs assign responsibility and measure performance and key indicators at every level of the organization. Every manager and employee plays an important role in accident prevention efforts.

The ROCIP has established various rules and requirements, which serve as guidelines for acceptable employee behavior. In addition, specific job site rules may be established to meet the needs of the project. In either case, the rules and regulations of the ROCIP, and jobsite rules, are subject to change, without prior notice, at the sole discretion of the DEN ROCIP Safety Team.

All supervisors and employees need to be aware of, enforce, and abide by the Airport, ROCIP and Contractor’s work rules and regulations. Rules have been developed to assist the efficient operation of the Project and for the benefit and safety of all employees and the public. In general, any employee found to be in violation of or found not to be enforcing Airport or ROCIP Project rules will be subject to disciplinary action, including immediate suspension or permanent discharge.

DEN Safety and Operations have the authority to assign infractions to any employees via points assessed against their badge. Assessment of points is at the discretion of DEN and may result in barring an employee from working on any DEN construction project or revocation of airfield driving privileges (See Airport Rules and Regulations, Part 35 Infraction Accountability Program and Appeals Process).

The following is a description of the ROCIP Project policy for dealing with discipline and termination:

a. Corrective discipline is normally the responsibility of the job foreman or superintendent. One purpose of discipline is to motivate an employee to change his/her behavior. Discipline can be effective in helping an employee develop a more acceptable level of job performance. In every case, the DEN ROCIP Safety Team reserves the right, in its sole discretion, to determine the appropriate level of discipline.
b. In the event discipline is considered, the foreman or superintendent will identify the severity of the problem and determine the appropriate level of discipline, recognizing that the seriousness of offenses may vary. When violations of a less serious nature occur, a discussion between the employee and the supervisor will often be sufficient.
c. In the case of more serious violation, a written warning may be issued. On some occasions, because of the seriousness of the offense, a written warning may be given even though a verbal warning

has not been issued. Certain other offenses will be of such a serious nature that they will be grounds for immediate suspension and /or discharge.

d. Verbal or written warnings are often appropriate for minor infractions and first-time offenses. A warning should include an explanation of the problem, which has been identified, with an opportunity for the employee to respond.
e. Discharge of an employee will be considered if the desired change in an employee's conduct is not accomplished through prior actions.
f. Employee misconduct may be of such a high level of seriousness that immediate termination will result. Examples of more serious misconduct include, but are not limited to, violation of the Substance Abuse Policy, blatant disregard for personal and public safety, disregard of the ROCIP Safety Plan or putting oneself or others in a situation that is or can be immediately dangerous to life or health, fighting, theft, and falsification of records.
g. In any given case, the DEN ROCIP Safety Team or the Contractor may find it appropriate to impose greater or lesser disciplinary action, based on individual circumstances.

Nothing in this policy should be construed as limiting the Contractor's discretion to impose any level of discipline at any time, up to and including discharge, as circumstances warrant.

Nothing in this policy alters an employee's status as an "at will" employee of his or her Employer or creates any contractual rights, either expressed or implied for the employee. This is part of the City's contract with the Contractor only. This Policy will be applied in a manner that is consistent with the requirements of appropriate local, state, and federal laws.

The Contractor and employer shall remove any employee from all DEN construction projects due to a violation of this manual or safety regulation upon request by DEN.

9.6 Fatigue Management

DEN requires all personnel to report for duty sufficiently well-rested to be able to safely perform their work responsibilities. Managing fatigue risk is the responsibility of all contractors on the project. Each contractor is responsible for implementing a fatigue management plan which shall address the variety of factors that can contribute to a lack of employee alertness, including understanding both work and personal obligations which can contribute to a fatigued state.

Fatigue is a complex state characterized by a lack of alertness and reduced mental and physical performance, often accompanied by drowsiness. Fatigue is objectively observed as changes in many aspects of performance, including increased reaction time, lapses in attention (i.e., reaction times greater than 500 milliseconds), reduced speed of cognitive tasks, reduced situational awareness, and reduced motivation. A person's perceived fatigue levels often are lower than observed decrements in performance.

The Contractor Fatigue Management Plan must at a minimum address: roles and responsibilities and training, fatigue related data, fatigue analysis methods, identification and management of fatigue drivers, and application of fatigue mitigation procedures.

If any contractor or subcontractor will exceed the below Hours of Service limitations below, then a Fatigue Management Plan separate from the SSSP must be submitted to DEN for review and acceptance. Contractor must provide a written justification for why they cannot abate exceeding these

hours and allow for worker rest periods. They must provide the proposed hours per shift, number of consecutive shifts, and minimum break time that employees will be provided.

Hours of Service - Maximum Work Time	12-Hour Shifts	10-Hour Shifts	8-Hour Shifts
Maximum Consecutive Shifts (Day or Night) in a Workset	7 shifts	8 shifts	10 shifts
Minimum Break Time			
Minimum Time off after a Workset	36 hours	36 hours	36 hours
Workset of 4 or more night shifts	48 hours	48 hours	48 hours
After more than 84 hours (Day or Night)	48 hours	48 hours	48 hours

The unscheduled maximum hours allowed in a shift are 16 hours. When this occurs, the employee must be given a minimum of 8 hours of rest time, not including their commute.

9.7 Mental Health Awareness and Suicide Prevention in Construction

The construction industry has one of the highest suicide rates of any occupation. Recent data also indicates around 80 percent of suicides in the United States are completed by men, and men between the ages of 50-59 have had a near 50 percent increase in suicides in recent years. Mental Health and Suicide can be difficult to talk about, but DEN recognizes the importance of training and communication in suicide awareness and prevention.

In addition to providing training to key staff (See Section 4 for Mental Health First Aid training requirements), DEN also requires contractors to review employer or community resources during orientation and through messaging or postings throughout the duration of the project. The following links take you to free resources, programs, and support available in Colorado and nationally:

- https://www.osha.gov/preventingsuicides
- https://coloradocrisisservices.org/
- https://theactionalliance.org/
- https://www.suicide-stops-here.org/
- https://www.preventconstructionsuicide.com/
- https://988lifeline.org or call 988 for immediate support

9.8 Serious Injury and Fatality Prevention Program

A serious injury and fatality (SIF) prevention program is a structured approach to identifying and mitigating risks that could lead to severe injuries or fatalities on the construction site. It focuses on proactive measures to prevent incidents with high potential for serious harm. These programs are crucial because while less serious injury rates may improve, SIF rates can plateau or even increase. Studies show that to improve SIF rates, more targeted prevention strategies must be utilized. Contractors need to clearly define what constitutes a SIF incident or where there is SIF potential by evaluating tasks, processes, and work environments.

Proactively identifying potential SIF precursors and hazards through techniques like visual literacy training for high-energy potential events and analysis of leading indicators is an important element of a SIF Prevention Program. A strong safety culture is also essential, with leadership actively promoting and prioritizing SIF prevention. This involves embedding SIF awareness into daily work practices and fostering open communication about potential hazards.

10. Safety Provisions

The safety provisions in this section may meet or exceed OSHA or other regulatory requirements. Recognizing that local, state, and federal regulations may change, in the event of a conflict between the ROCIP Safety Manual, the Contract Documents, and any regulatory authority, the more stringent standard prevails. See applicable pre-planning requirements in Section 6.

10.1 Airport Rules and Regulations

There are regulations specific to working on or near airports that contractors need to be aware of. Note that the information in this section is not exhaustive, and Contractors and Subcontractors are responsible for compliance with all applicable current and future airport regulations on the project.

10.1.1 Safety Management System

Stakeholders must comply with the requirements of DEN's Safety Management System (SMS) as detailed in the DEN SMS Manual, consistent with Federal Aviation Administration (FAA) regulations, including 14 CFR Part 139 and Part 5.

10.1.2 Badging Requirements

Airports subject to 49 CFR Part 1542, Airport Security, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

10.1.3 Airfield Driver Training and Badging

Any driver with a Driver Authorization must comply with all applicable rules and regulations of DEN, including Rule 35 and Rule 130 as well as any applicable FAA Part 139 (14 CFR Part 139) requirements.

(1) Companies with Drivers are:
   a. Required to ensure that their Drivers obtain the proper badge and driving endorsement from DEN before driving on the airfield or any other location where badge or other authorized access is required.
   b. Required to have a designated company driver trainer(s) vetted by the DEN Driver Education Program bi-annually.
   c. Required to create and have approved a company driver training program that has been approved by DEN Driver Education Program and Parent/Sponsor company if applicable.
   d. Required to have their drivers watch any Safety Alert videos from DEN and communicate any changes to assigned routes in a timely manner.
   e. Required to designated company driver trainer(s) conduct a physical drive around with all drivers annually for driver familiarization/training which includes what was covered routes (haul or delivery), gate access and approved areas to drive on the airfield.

f. Maintain records for each of these drivers for a period of 24 months and be able to provide these records to Airport Operations and/or Federal Aviation Administration (FAA) upon request.

(2) Individual Drivers must:
   a. Obtain an appropriate DEN badge for the driving expected to be required.
   b. Watch the Non-Movement Driver Training video during the badging process.
   c. Complete training with a DEN Driver Educator or a company driver trainer that has completed the Train the Trainer course with DEN Driver Education.
   d. Complete Non-Movement Area Driving evaluation, update and maintain records yearly with an approved intercompany trainer or the General Contractor.
   e. Have in their possession a current project site map(s) and haul route map(s) (with alternative routes) clearly defined. Contractor is responsible for orienting all drivers to their approved haul route.
   f. Comply with all rules regarding airfield driving and vehicle markings.

10.1.4 Vehicle and Equipment Identification

Refer to FAA AC 150/5210-5D or your CSPP for vehicle identification requirements.

All construction equipment and vehicles shall be flagged for daytime visibility and additionally lighted for nighttime operations. Vehicles which are not marked and lighted shall be escorted by a vehicle that is equipped with appropriate marking and lighting devices.

10.1.5 Wildlife Management

Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as trash, standing water, tall grass, poorly maintained fencing and gates, or disruption of wildlife habitat.

10.1.6 Foreign Object Debris (FOD) Management

Waste and loose materials, commonly referred to as FOD, can cause damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, Foreign Object Debris (FOD) Management.

Contractor must provide and use a sweeper/vacuum truck to control Foreign Object Debris continuously. Haul route must be continuously monitored by a full time individual to ensure Foreign Object Debris is being removed. A back-up sweeper must be readily available at all times for the project. No amount of Foreign Object Debris shall be allowed on the AOA.

10.1.7 Coordination with Denver Fire Department

Contractors must coordinate with DEN, including the Denver Fire Department, mutual aid providers, and other emergency services if construction requires:

- The deactivation and subsequent reactivation of water lines or fire hydrants, or
- The rerouting, blocking and restoration of emergency access routes, or
- The use of hazardous materials on the airfield.

Construction Activity shall not impede Aircraft Rescue and Firefighting vehicle response or access at any time.

10.1.8 Airport Operations

It is important to recognize that permissions and forms may be required by the FAA for certain operations or construction processes which can cause delays if not communicated with DEN Operations and Project Team in a timely fashion. Pre-planning is of utmost importance for activities which may disrupt airport operations or the safety of the airfield. The Contractor should be aware of limitations the FAA or DEN may have on construction activities, such as, but not limited to:

a. Airport will remain in operation. Aircraft will always have the right of way. The contractor shall not travel on any active surface unless approved by DEN Operations and escorted by a DEN Project Manager or representative with the appropriate credentials.
b. The Contractors shall not be within the Object Free Area or Safety Area of a Runway, Taxiway, or Taxilane at any time **unless prior coordination with DEN Operations.**
c. No use of tall equipment (cranes, concrete pumps, drill rig, and so on) unless a 7460-1 determination letter is approved for such equipment or structures.
d. No use of open flame welding or torches unless fire safety precautions are provided, and DEN has approved their use.
e. Construction may be subject to suspension during specific airport operations. Construction may be stopped at any time for Snow Operations, Deicing or SMGCS (low visibility operations) at the discretion of DEN Operations. In certain situations, the haul route may be suspended by DEN Operations but construction at the job site may continue.
f. Areas that cannot be worked on simultaneously or failing to follow phasing plans.
g. Day, night, or seasonal construction restrictions.
h. Work zone lighting requirements for nighttime construction.
i. Temporary signs requiring Airport Operations approval.
j. Grades changes that could result in unplanned effects on NAVAIDs.
k. Requirements for delineation of construction zones and haul route approvals.
l. Erosion control standards.
m. Dust and Debris control shall be strictly monitored due to its impact on aircraft safety. Failure to do so will result in construction activities being stopped by the DEN Project Manager, DEN Safety, or Airport Operations until it can be properly controlled.
n. For closures longer than 24 hours, FAA approved low profile barricades must be used. They must be interlocked where there is non-construction employee pedestrian interface and spaced no more than 10 feet apart for delineating vehicle only boundaries. Lights are required to be operational 24/7. **All lights should be in working order prior to leaving the site each day, including lighted X's. Inoperable lights must be repaired immediately. Contractor shall provide a 24/7 contact to maintain the lights.** Barricades shall be filled with water and levels checked daily.

o. For closures less than 24 hours, 36” orange cones with reflective collars must be used to identify the limits of construction and hazardous areas. During low visibility or hours of darkness, cones must be enhanced with red LED, flashing lights.
p. Stockpiling of construction materials.
q. Potential modifications to the MUTCD requirements on the airfield.
r. Denver Fire Department permitting requirements.
s. Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.
t. Regulatory requirements as outlined in the current Advisory Circular 150/5370 for “Operational Safety on Airports During Construction.”

Working on the airfield can also present unique safety hazards, such as jet blast. Contractors shall review their worksite location in relation to airline and airport operations to determine what mitigation measures are necessary to protect their employees from jet blast, moving equipment, and any other present or possible exposures.

10.2 Motor Vehicles & Equipment

10.2.1 Personal Vehicles

a. Personal vehicles must be parked in designated areas that are free of construction activities.
b. Personal vehicles are prohibited from accessing roadway projects utilizing construction vehicle accesses.
c. Personal vehicles are prohibited from the airfield.
d. Approved routes will be limited and appropriately marked.

10.2.2 Jobsite Vehicles & Equipment

a. All equipment, heavy equipment, vehicles, and trucks shall be inspected daily before use by each operator. All moving construction equipment (such as but not limited to forklifts, MEWPs, loaders, excavators, pavers, RTPs, etc.) shall have a daily written checklist inspection available during each work shift. Equipment that has inoperable safety devices as installed by the manufacturer or does not pass all checklist items shall not be operated on site until repaired by qualified personnel.
b. Defective equipment shall be repaired or removed from service immediately. If removed from service, a “red tag” shall be attached with an explanation of the defect and the date and name of the individual placing the equipment out of service.
c. Equipment to be repaired must be properly locked out and secured according to the manufacturer’s requirements and to ensure stored energy cannot cause injury to personnel.
d. All heavy equipment and CDL vehicles shall be equipped with working back-up alarms.
e. OSHA considers being caught between the rotating superstructure of an excavator and the carrier or other object a serious hazard and one that is recognized by the excavation industry. Therefore, not only is the employer required to instruct each employee that could be exposed, on the danger of working near the rotating superstructure (see §1926.21(b)(2)), but must also take the necessary precautions (e.g., erect barricades, warning lines, or other excavation industry recognized procedures) to prevent entry into a swinging superstructure's radius. (Standard Interpretation, January 16, 2003, Waler H. West.)

f. All Contractors' operators of construction equipment shall be properly licensed (where required), trained, certified where required, and classified as a competent person for that equipment. Copies of the certifications (and licenses if required) shall be maintained on project site by Contractor and made available upon request.
g. Pedestrians always have right-of-way over motorized traffic.
h. Where pedestrians are exposed to on-site traffic, a means of delineation will be provided to separate the traffic from workers and warn drivers that pedestrians are working in the area or crossing the designated haul route.
i. Before an employee goes to a location in the hazard area that is out of view of the operator, the employee (or someone instructed by the employee) must ensure that the operator is informed that he/she is going to that location.
j. For reversing, bi-directional or swinging activities where there is an exposure to contact pedestrians, a designated spotter is required. The spotter shall have a clear view behind and beside the equipment/vehicle.
k. Contractor shall implement one-way traffic systems around the site and loading/unloading areas where possible and instruct drivers and operators to limit reversing.
l. Equipment and vehicles will not be allowed to idle for more than 5 minutes without an operational need.
m. Operators will remain in the seat while implements, booms, or attachments are raised with or without a load.
n. Horns shall be sounded at blind corners, when passing, when backing up, and/or for warning.
o. Established hand signals or turn signals are to be used.
p. Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be transported. All passengers shall be properly seated with seat-belt used. Standing/kneeling on the back of moving vehicles or equipment is prohibited.
q. Drivers of motor vehicles and equipment shall have a valid state driver's license (CDL-Commercial Driver's License when applicable) and be instructed to exercise good judgment as well as observe posted speed limits.
r. Drivers must operate appropriately for existing weather conditions. This may require speeds below the posted speed limit.
s. All Contractors' means of ingress and egress shall be adequately marked and kept clear of stored material, debris and equipment.
t. The use of cellular telephones, PDA's or other wireless devices (collectively referred to as "wireless devices") while operating motor vehicles and mobile equipment on projects site(s) is prohibited. Communication devices in vehicles for constant use for safety and access control, communication with Air-Traffic Controllers and emergency response purposes are exempted from this policy.
k. Reckless driving or other non-observance of these instructions will be cause for withdrawal of driving privileges on the project.
l. Speed limits on the project site acceptable to the DEN ROCIP Safety Team will be posted by the Contractor. Violations of the posted speed limit or traffic control devices may be cause for removal from the project site.
m. All vehicles permitted access to the site shall display the name of their company on the side, front or rear of the vehicle while on the project or airfield. The company name or identification shall be visible and legible from 50 feet. Vehicles without proper identification will be removed at the Contractor's expense.
n. Seat belts shall be worn by all employees operating motor vehicles and any equipment with rollover protection structures during performance of work.

o. Motor vehicle operation on the airside of the Denver International Airport must complete and pass the training and orientation required by DEN in accordance with FAA, TSA, DHS, and any other agency requirements for operations of vehicles. See Division 1 – Section 01110 and Section 10.1 for additional requirements.
p. Golf carts, Kawasaki Mule buggies, John Deere Gators, or vehicles of such type must have Roll over protection that has been designed by the manufacturer, an orange flag for visibility, a horn, back up alarm and a seat belt installed. Other than for work to be performed in baggage tunnels, Contractor must provide request to DEN demonstrating need for such additional equipment prior to mobilizing to site. Requests may be denied if deemed an unwarranted safety risk.
q. Motorcycles and bicycles are not permitted on the project site.
r. For additional requirements, see Division 1 of the Contract Documents – Section 01016.

10.3 Lifting Operations

10.3.1 Crane Operations

All crane operations must follow the regulatory requirements in 29 CFR 1926 Subpart CC, 29 CFR 1910 Subpart N, the applicable standards in ASME B30.5, and the Standards set forth in this Manual.

Digger Dericks and Gantry Cranes are not exempted from 3rd party inspections. Digger Derrick operators must be certified operators as defined in Federal OSHA 29 CFR 1926 Subpart CC.

If loads are transferred onto or within a building structure, the Contractor must coordinate with the DEN Project Manager to identify safe, structurally suitable lift and drop zone locations, including assessment of potentially occupied areas and subterranean utility systems. Notification, and evacuation, of occupied areas under lift and drop zones must occur prior to lift where there is breakthrough potential. When lifting next to occupied spaces where the load is swinging toward the building, contractor will set up an interior perimeter or utilize personnel to keep the public away from the walls or glass.

10.3.2 Crane Assembly/Disassembly

Work is to be directed by an A/D (Assembly/Disassembly) director. The A/D director must meet the criteria for both a “competent person” and a “qualified person,” or must be a “competent person” assisted by a “qualified person.”

a. The A/D director must understand the applicable procedures.
b. The A/D director must review the procedures immediately prior to beginning work unless he or she understands the procedures and has used them before for that equipment type and configuration.
c. The A/D director must ensure that each member of the crew understands his or her tasks, the hazards of the tasks, and any hazardous positions or locations to avoid and be documented on the Pre-Task Planning sheet.
d. Address hazards associated with the operation, including 12 specified areas of concern: site and ground conditions, blocking material, proper location of blocking, verifying assist crane loads, boom & jib pick points, center of gravity, stability upon pin removal, snagging, struck by counterweights, boom hoist brake failure, loss of backward stability, and wind speed and weather.

e. The A/D director must verify all capacities of any equipment used, including rigging, lifting lugs, etc.

10.3.3 Crane Operators

The crane operator shall not be responsible for hazards or conditions that are not under his direct control and that adversely affect the lift operations. Whenever the operator has doubt as to the safety of crane operations, the operator shall stop the crane's functions in a controlled manner. Lift operations shall resume only after safety concerns have been addressed to the operator's satisfaction or the continuation of crane operations is directed by the Lift Director.

Crane operators and riggers must be given the opportunity to pre-inspect crane lift and load placement areas.

10.3.4 Site Supervisor

The site supervisor exercises supervisory control over the worksite on which a crane is being used and over the work that is being performed on that site. Site supervisor's responsibilities shall include the following. Please refer to ASME B30.5 5-3.1.3.2.1 for a complete list of duties:

a. ensuring that the crane meets the requirements of Chapter 5-2 prior to initial site usage.
b. determining if additional regulations are applicable to crane operations.
c. ensuring that a qualified person is designated as the lift director.
d. ensuring that crane operations are coordinated with other jobsite activities that will be affected by or will affect lift operations.
e. ensuring that the area for the crane is adequately prepared. The preparation includes, but is not limited to, the following:
    i. access roads for the crane and associated equipment
    ii. sufficient room to assemble and disassemble the crane
    iii. an operating area that is suitable for the crane with respect to levelness, surface conditions, support capability, proximity to power lines, excavations, slopes, underground utilities, subsurface construction, and obstructions to crane operation
    iv. traffic control as necessary to restrict unauthorized access to the crane's working area
f. ensuring that work involving the assembly and disassembly of a crane is supervised by a qualified person.
g. ensuring that crane operators are certified and qualified
h. ensuring that conditions that may adversely affect crane operations are addressed.

10.3.5 Lift Director

The lift director directly oversees the work being performed by a crane and the associated rigging crew. The lift director's responsibilities shall include the following. Please refer to ASME B30.5 5-3.1.3.2.2 for a complete list of duties:

a. being present at the jobsite during lifting operations.
b. stopping crane operations if alerted to an unsafe condition affecting those operations.
c. ensuring that the preparation of the area needed to support crane operations has been completed before crane operations commence.

d. ensuring necessary traffic controls are in place to restrict unauthorized access to the crane's work area.
e. ensuring that personnel involved in crane operations understand their responsibilities, assigned duties, and the associated hazards.
f. Addressing safety concerns raised by the operator or other personnel and being responsible if the lift director decides to overrule those concerns and directs crane operations to continue. (In all cases, the manufacturer's criteria for safe operation shall be adhered to.)
g. ensuring that signalperson(s) and riggers appointed are qualified.
h. ensuring that all necessary precautions are implemented when performing a critical lift.
i. ensuring that the applicable requirements of ASME B30.23 are met when lifting personnel.
j. informing the crane operator of the weight of loads to be lifted, as well as the lifting, moving, and placing locations for these loads and obtaining the crane operator's verification that this weight does not exceed the crane's rated capacity.

10.3.6 Rigging

Employers must use qualified riggers during crane or heavy equipment hoisting activities or for crane assembly and disassembly work. The rigger selects, configures, and assembles the rigging equipment for attachment, support, control and detachment of the load during lifting activities. Qualified riggers are required whenever workers are within the fall zone and hooking, unhooking, or guiding a load, or doing the initial connection of a load to a component or structure. The materials being hoisted must be secured and rigged to prevent unintentional displacement.

Only employees needed to receive a load are permitted to be within the fall zone when a load is being landed. No employees are allowed to be directly under the load. Only employees essential to the operation are permitted in the fall zone (but not directly under the load).

a. Chains will not be allowed for rigging without a variance request and will require a critical lift plan.
b. All rigging used on site must comply with the marking, identification, and testing requirements of the applicable American Society of Mechanical Engineers (ASME) standards, such as ASME B30.9, ASME B30.10, ASME B30.20, and ASME B30.26.
c. Components will be found acceptable if they have all the markings and proof testing as indicated under the applicable ASME standard.
d. All custom lifting accessories must be designed by a professional engineer, with design criteria available on site, and all markings required by ASME B30.20.
e. Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored and maintained in a safe condition.
f. Rigging may not be left on soil or contaminated surfaces that may cause damage. Rigging susceptible to sun or heat damage will be stored in manner to protect them.
g. See Section 10.16 for rigging requirements specific to Steel Assembly.
h. See Critical Lift Rigging Plan requirements in Section xxx.

10.3.7 Lift Signals

A qualified signal person is required during crane or other heavy equipment lifting operations when:

a. The point of operation is not in full view of the operator.
b. The operator's view is obstructed in the direction the equipment is traveling.
c. Either the operator or the person handling the load determines that a signal person is needed because of site-specific safety concerns.

Contractor must use one of the following options to ensure that a signal person is qualified:

a. Third party qualified evaluator. The signal person has documentation from a third-party qualified evaluator showing that he or she meets the qualification requirements.
b. The employer's qualified evaluator (not a third-party) assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination. This assessment may not be relied on by other employers.

10.3.8 Shift Crane Inspections

Cranes shall be inspected by the operator prior to each shift in accordance with 29 CFR 1926.1412(d). If a deficiency is noted and determined to constitute a safety hazard, the equipment must be taken out of service until it has been corrected. After any safety deficiency has been corrected, the Contractor must perform another 3rd party inspection as required in Section xxx of this Manual prior to operation of the crane. Shift inspections shall be documented and available for review on site and for 30 days following operation.

10.3.9 Crane Placement

Before even considering crane placement, it's crucial to thoroughly assess the site for potential hazards, obstructions, and ground conditions. Evaluate the stability of the ground, including soil type, compaction, and any potential for sinking or instability.

The Contractor must evaluate the soil bearing capacity at the lift site to ensure that the crane, including the maximum intended load, is compatible with the location and placement of the crane. Review of any underground installations shall be part of the evaluation. Consider consulting with a geotechnical engineer. At a minimum, the horizontal distance for crane setup from an excavation must be greater than the depth of the hole, unless the contractor provides an analysis stamped by a professional engineer. If the crane will be placed on a bridge or structure, contractor must verify that there is adequate bearing capacity.

When outriggers or stabilizers are used or are necessary:

a. Outriggers and stabilizers must be fully extended or, if permitted by manufacturer procedures, deployed as specified in the load chart.
b. Outriggers must be set to remove equipment weight from the wheels.
c. Outrigger floats, if used, must be attached to the outriggers; stabilizer floats, if used, must be attached to the stabilizers.
d. Each outrigger or stabilizer must be visible to the operator or to a signal person during extension and setting.
e. Outrigger and stabilizer blocking must be placed under the float/pad of the jack or, if there is no jack, under the outer bearing surface of the outrigger or stabilizer beam. Blocking must also be sufficient to sustain the loads and maintain stability and must be properly placed, per manufacturer's specifications.

f. Ensure proper placement of support materials, such as cribbing, under the outrigger floats.

10.3.10 Work Platforms Suspended from Cranes

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

Contractor shall submit a written variance request to DEN ROCIP and receive acceptance before using a suspended personnel work platform identifying the rationale for selecting a suspended personnel work platform and explanation why conventional methods would be more hazardous or infeasible. Prior to the use of a work platform suspended from a crane, the Contractor and/or Subcontractor will complete the Suspended Personnel Platform Checklist in Appendix C.1d for each such operation and will maintain a file documenting its operation for the duration of the project. Each record is good only for lifts made from a single crane set-up location. Traveling, repairs or modifications of the crane will require a new record. Each record is to:

a. Be initiated by the supervisor of the employee who will be working from the platform
b. Describe the work to be performed and its exact location
c. List all required inspections, certifications, tests, and pre-lift meetings
d. Be signed by the crane operator, rigger, and initiating supervisor
e. Note the name of the person who will flag or signal the crane operator
f. Remain with the crane while the personnel hoist is in progress
g. Section 4 (Weight Calculation Sheet) of the Suspended Personnel Work Platform Checklist must be submitted to the DEN ROCIP Safety Team for review 7 days in advance of scheduled work.

10.4 Elevated Work - Fall Restraint, Fall Arrest, Guardrails, or other Leading-Edge Requirements

Contractors and Subcontractors of any tier shall provide an appropriate fall prevention or fall protection system whenever employees are exposed to falls in excess of six feet or higher in compliance with 29 CFR Part 1926 Subpart M. Examples of exposures include, drilled shafts, steel erection, leading edge walking/working surfaces, unprotected manholes or excavations, etc. Controlled access zones are not permitted as appropriate means of fall prevention or protection on a project. All fall protection equipment must be inspected by employees before each use. This equipment and guardrails shall also be inspected by a competent person initially and at least monthly and documented, or more frequently as contractor deems necessary. The documentation for these inspections must be readily available on site. Damaged and worn equipment must be removed from service and the project site immediately.

10.4.1 Types of Fall Protection Systems

a. Personal fall arrest system is a means used to arrest an employee in a fall from a work level. It consists of an anchorage, full body harness, and connectors.
b. Positioning device system allows an employee to be safely supported on an elevated vertical surface (such as a wall) and work with both hands free. The positioning device is not to be used as a primary anchor point.
c. Warning line system is a barrier erected to warn employees that they are approaching an unprotected edge. It also designates an area in which work may not take place

without the use of a guardrail, personal fall arrest/restraint system or a safety net to protect employees. The warning line must be a minimum of 15 feet from the unprotected edge.

d. The use of safety monitors is prohibited.
e. Guardrail system is a barrier erected to prevent employees from falling to lower levels. All guardrails must meet the requirements of 29 CFR 1926.502. This includes erection of guardrail around manhole entries or other in-ground vaults where a fall hazard exists.
f. Safety net system can be used when workplaces are more than 25 feet above the ground, water surface or other surfaces where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or a safety harness is impractical.

10.4.2 Safety Harness and Anchorage Devices

The only permissible fall arrest system on a project is a full body harness, subsystem, and components meeting ANSI requirements. To maintain 100 percent fall protection, two lanyards may be required.

Safety harnesses must be secured to an anchor point, preferably overhead, of substantial capacity capable of supporting at least five thousand pounds per worker attached (e.g. pipe, structure, cable, or rope lifeline) or 2 times the intended load. Anchorage not secured overhead shall require additional sharp or leading-edge protection. Anchorages must be engineered. Where anchorage devices have a working radius, this must be visually indicated on the working surface, so employees do not leave the allowable working area of the device.

Once in use, the system's effectiveness is to be monitored by a qualified person. In some cases, a program for cleaning and maintaining the system may be necessary. Anchor points must be inspected and approved by a qualified person.

10.4.3 Lanyards

Lanyard and lifeline selection will be determined by the type of work as well as the environmental conditions. If lanyards, connectors, or lifelines may be damaged by welding, chemical cleaning, sandblasting, or sharp edges, either protect the components or use a more appropriate type of securing system.

Lanyards and lifelines must incorporate or be used with an appropriate deceleration device. Deceleration devices include rope grabs, rip-stitch lanyards, specially woven lanyards, tearing or deforming lanyards, automatic self-retracting lifelines and lanyard, etc., which dissipate or otherwise limit the energy imposed on an employee during fall arrest. Lanyards and lifelines must only use locking snap hooks. Under no circumstances may two lanyard snap hooks be connected to each other.

A self-retracting lanyard (i.e. SRL, yoyo, etc.) may not be used in restraint applications unless the total deployed length restricts employee movement in all directions to keep them from a fall hazard.

10.4.4 Horizontal Lifelines

Horizontal lifelines (HLL) and catenary lines shall be designed by a registered professional engineer. HLLs shall be installed and maintained, per the design, by a competent person.

- Horizontal Lifeline and Catenary Line Fall Distance. The primary factor that is critical to the design of HLL or catenary line system is calculating the dynamic point loading and deflection of the line and end connection points. Other factors that must be accounted for include freefall of the worker, the deceleration distance of the worker's shock-absorbing lanyard or retractable lifeline and any other considerations that increase the worker's total fall distance. The sum of these factors shall not be so great that the worker can contact an obstruction or lower level. The registered professional engineer or manufacturer of an HLL or catenary line system shall provide a method of calculating minimum clearances for temporary systems that can be installed in multiple configurations.
- Horizontal Lifeline and Catenary Line Designed Load Factor. When HLL's or catenary lines are used, the Contractor shall include in their fall protection plan the appropriate and specific engineered calculations for the system based on the number of workers attached. The load requirement is often confused with the 5,000-pound OSHA requirement for personal fall arrest systems (PFAS). The Contractor shall take into consideration in the design of the HLL and catenary line, the maximum arresting force on a worker's lanyard may be greater than 1,800 pounds depending on the line's geometry, angle of sag, the lines elasticity and the dynamic deflection to the end loads at the anchorage points or stanchions.

NOTE: Catenary lines shall be elevated, not at or below walking level, unless a variance is granted and approved in writing. This includes steel work.

10.4.5 Training

Contractor must provide a fall prevention training program for each employee who might be exposed to fall hazards. The training program must include recognition of the hazards of falling and procedures to follow to minimize these hazards. Training materials must be reviewed to verify that each employee has been trained, as necessary, by a competent person knowledgeable in the following areas:

a. The nature of fall hazards in the work area
b. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
c. The use and operation of guardrail systems, restraint systems, personal fall arrest systems, safety net systems, warning line systems, CAZS, and other protection to be used
d. The limitations on the use of mechanical equipment during the performance of roofing work on low sloped roofs
e. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
f. The role of employees in fall protection plans
g. The requirements contained in 29 CFR 1926 Subpart M.

Contractor must maintain a written certification record of employee training for review. The record must contain the following information:

a. The name or other identity of the employee trained
b. The date(s) of the training
c. Topics reviewed
d. Trainer and trainee signatures

10.5 Scaffolding

All scaffolds and platforms must meet the following requirements:

10.5.1 General Requirements

a. Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction under a competent person qualified in scaffold moving, erecting, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
b. The competent person will determine the feasibility and safety of providing fall protection for employees erecting or dismantling support scaffolds. The Contractor is required to provide fall protection for employees erecting or dismantling support scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
c. Scaffolds or walking/working surfaces four (4) feet or more above the ground or floor are to be completely decked and have handrails, mid-rails and toe-boards installed. If for some reason, a platform or scaffold cannot be equipped with standard handrails or completely decked, safety harnesses must be worn and properly tied off.
d. Competent person shall determine capacity of the scaffold and communicate that to employees to prevent overloading the system or bays when loading with personnel or material.
e. Chain guardrails on scaffolding are not permitted.
f. Overhead protection for employees on a scaffold is required if they are exposed to overhead hazards.
g. Barricade the area beneath the scaffold and post “working overhead” signs in all approach directions.
h. Materials will not be stored on scaffolding, excepting supplies needed for immediate use. All debris and tripping hazards will be removed immediately.
i. No scaffolds will be utilized to support other scaffolds, ladders, or non-manufactured/non-compatible working surfaces or attachments.
j. Contact the DEN ROCIP Safety Team if any special scaffolding issues arise.
k. When scaffolding is not attended or controlled, access ladders shall be removed or other restrictive measures implemented to prevent access by the public or unauthorized individuals.

10.5.2 Rolling Scaffolds

a. No one is to ride on a rolling scaffold while it is being moved. Motorized scaffolding designed for powered movement from the platform is excluded from this rule.
b. All materials and tools must be secured prior to moving a rolling scaffold.

10.5.3 Scaffold Planking

a. Paint or stamp scaffold planks within 12” on each end or edge to denote use for scaffold decking only. When installed the markings must be visible on the platform edge.
b. Use only 2” X 10” or 2” X 12” scaffold grade material for scaffold planking.
c. Standard plywood sheets or job-built platforms/planks may not be used in place of wood scaffold planks or engineered planking systems, e.g. engineered

aluminum/plywood planks, unless capacity and deflection calculations are provided by a qualified person showing the construction will meet the requirements in 29 CFR Part 1926 Subpart L.

10.5.4 Scaffold Tagging

The most effective means of communication between the scaffold builder and the scaffold user is a scaffold tag. The tagging procedures are as follows:

a. The crew that erects the scaffold must complete and attach the appropriate scaffold tag.
b. The scaffold tag must be placed at eye level on or near the access ladder, so it is easy to locate and plainly visible.
c. If the scaffold needs to be altered in any way, the person who signed the tag must be contacted to authorize the change and re-tag if necessary.
d. An untagged scaffold must not be used.
e. Scaffolds shall be inspected and documented by a competent person before each shift. Scaffolds passing inspection shall have a green tag applied with the date of inspection and the inspector's signature.
    i. A green "Scaffold Use" tag shall be used for pre-shift inspections. Note: This tag shall be attached by the qualified person upon completion of the scaffold erection.
    ii. A yellow tag is completed and attached to scaffolds that cannot be erected with all the components complete. The yellow tag allows the erecting crew to note what portion of the scaffold is incomplete and cautions the user. A yellow tag also informs the user fall protection may be required.
    iii. A red tag means the scaffold is being dismantled not yet completely erected or for some reason not safe and shall not be used.

10.6 Mobile Elevating Work Platforms- formerly Scissor Lifts (Group A) and Aerial Lifts (Group B))

a. A full body harness and lanyard shall be worn by persons working in a mobile elevating work platform (MEWP) and the fall protection system shall be attached to the manufacturer's approved anchorage point on the boom or basket. It is the responsibility of the employer and user to review the manufacture's operator's manual for approved tie-off locations.
b. Fall protection shall not be secured to an adjacent pole, equipment, or structure when work is being performed from the basket of the MEWP.
c. Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the toeboards, midrails, or top rails of the basket or use planks, ladders, or other devices. Where contractors allow the use of retractable lanyards which does not inhibit climbing on rails, then a fall rescue plan must be submitted, regardless of MEWP Group.
d. The area below shall be protected in the case of overhead hazards, and the basket will be encased in fabric mesh capable of preventing work objects of the smallest size from falling. The mesh will be installed from top rail to the basket floor. Material used may not be opaque.
e. MEWPs must be inspected prior to each shift by each operator using the lift. This will be documented on a standard inspection form supplied by the contractor who is responsible for the MEWP. Daily inspection records shall be available for review with the lift for the duration of the work shift and maintained for the duration of the project.
f. Employees shall not use MEWPs to transfer bulk materials or tools. MEWPs cannot be moved or driven to another location without lowering the basket first. Incremental adjustments are allowed in Group A MEWPs if and as allowed by the Manufacturer.

g. When operating where uneven surfaces exist or the potential for drop-off, a curb or other positive physical means will be installed to prevent the MEWP from driving off an edge and/or tipping.
h. Contractor must confirm that the building structure can support the added live load of the MEWP.

10.6.1 Supervisor MEWP Training Requirements

Supervisors overseeing MEWP operations must have training in the following areas:
a. Proper selection of the correct MEWP for the work to be performed
b. The rules, regulations and standards that apply to MEWPs, including the provisions for safe use and the work being performed
c. Potential hazards associated with use of MEWPs and the means to protect against identified hazards
d. Knowledge that the manufacturer's operating manuals are an integral part of the equipment and need to be stored properly in the weather resistant compartment on the MEWP.

10.6.2 Employee and Operator MEWP Training Requirements

The MEWP operator must have training in accordance with OSHA requirements and as outlined in ANSI A92. All occupants in the platform must have a basic level of knowledge to work safely on the MEWP and be trained on:
a. the requirement to use fall protection and the location of fall protection anchors
b. Factors including how their actions could affect stability
c. Safe use of any MEWP accessories that they are assigned to use
d. Any site-specific work procedures the occupants must follow related to the operation of the MEWP
e. Hazards related to the task at hand and their avoidance
f. Manufacturer’s warnings and instructions
g. At least one of the occupants must be provided with the knowledge to operate the controls in an emergency where the operator cannot. This is emergency training only and does not constitute operator training.

10.7 Floor and Roof Openings

Floor and roof hole covers shall be installed and maintained by the Contractor creating the hole. In the event a Contractor alters or removes a hole cover to complete work, they shall replace it, or make it safe, prior to leaving the work area. The covers must be capable of supporting twice the maximum intended load, secured against displacement or lifting, and labeled as a “hole” or “cover.” If a hole cover is in a typical pedestrian worker access walking/working surface, then the sides will be beveled to mitigate tripping hazards.

10.8 Ladders

The purpose of this policy is to establish minimum expectations for personnel working with portable ladders. This policy applies to all work performed from ladders or where ladders are used for access to an elevated working surface.

10.8.1 General Requirements

a. **Only Class 1A or 1AA fiberglass and wood ladders are allowed on site.** Metal ladders (other than fixed building ladders) are prohibited on the DEN Project.

b. Use a ladder for its intended purpose ONLY. Inspect ladder prior to use according to manufacturer's recommendations. Tag and dispose of defective ladders immediately.
c. Identify every ladder with company name.
d. Personnel shall only work from ladders where other means of access aren't practicable, such as for short duration work or limited access.

10.8.2 Fall Protection and Prevention on Ladders

All personnel working on ladders where they are using a step at a height over six (6) feet must use fall protection and be properly trained. If a job being performed on a ladder is rendered more hazardous using personal fall protection the employer must submit for a variance request in writing attached to their Exposure Specific ladder plan (Section 6.3), and it must be accepted by DEN Safety. All employees working from ladders must:

a. Ascend/descend the ladder, always maintaining at least three points of contact with the ladder
b. Maintain his/her center of gravity between the rails while performing work on the ladder
c. Always face the ladder while working, ascending, and descending

10.8.3 Usage

All ladders must be used in accordance with manufacturer's requirements and this Manual.

a. Ladders shall be used only on stable and level surfaces. All ladders must have slip resistant feet.
b. Ladders placed in any location where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, shall be secured to prevent accidental displacement.
c. The area around the top and bottom of a ladder shall be kept clear and shall not be used for storage of unattended materials.
d. The top of a straight ladder shall be placed with the two rails supported equally unless it is equipped with a single support attachment.
e. Straight/extension ladders shall extend a minimum of 3 rungs or 36" above the surface to be accessed and shall be secured. Where the ladder will be used to supply access to an elevated working surface or a trench for more than one shift, walk through extensions with self-closing gates must be used.
f. Folding step ladders shall ONLY be used in the fully open position, with spreaders locked.
g. When working from a step ladder, the worker's waist must remain below the top cap and between the rails to maintain balance and prevent the ladder from tipping.
h. Workers may not support materials weighing more than 30 pounds while working from a ladder or that would make them exceed the marked capacity, nor may they do work requiring them to exert such a force which may cause them to lose balance or topple the ladder.
i. Ladders shall not be set next to a leading edge, guardrail, top of stair, or any condition that exposes the employee to a further fall distance. Ladders must be erected the height of the ladder plus at least 5 feet from any of these conditions, or more as necessary.

10.8.4 Storage

Ladders are to be stored in a secure manner that will not allow them to fall. When shift work is complete, the ladders will be returned to a designated storage area. Allowable storage methods include:

a. Chained together upright
b. Laid down flat stacked in a manner so they cannot tip/fall. Maximum of 4 stacked on top. (Head to toe)
c. On supported wall racks designed and designated for ladder storage

10.8.5 Job Built Ladders.

Job built ladders shall comply with ANSI A14.4 – Safety Requirements for Job Made Ladders.

10.9 Rescue Plans for Falls in Harness

Contractor must develop a rescue plan that aims for prompt rescue of the suspended worker within 3-6 minutes to minimize the risk of suspension trauma, per ANSI Z359.2-6.1.

10.10 Dropped Object Protection

Barricades shall be used to clearly define and prohibit employees from entering the affected area (drop zone) and shall cover a large enough area to account for deflection, rolling, or bouncing of falling objects. The minimum radius of the drop zone must be indicated on your elevated work plans for MEWPs, ladders, scaffolding, and leading-edge work. Justification for your drop zone radius must be indicated whether using an established industry calculation or ratio, and given the materials and tools you will be using at height. Signs must be posted for the controlled drop zone stating the hazard, contractor, and contact information for the supervisor of the work.

Where drop zones (administrative control) cannot be established that are large enough to account for the height and deflection of potential falling objects, then falling object prevention shall be used and may be accomplished through active engineering controls, passive engineering controls or a combination of both.

a. No makeshift tethers are allowed and must meet ANSI 121.
b. Tools or objects over 5 pounds shall not be tethered to the body and shall be tethered to an attachment point capable of supporting the weight of the tool.

10.11 Excavations and Trenching

Excavation and trenching are among the most hazardous construction operations. Excavations are defined as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is defined as a narrow underground excavation that is deeper than it is wide and is no wider than 15 feet.

Contractors shall never enter an unprotected trench. **Trenches 4 feet deep or greater require a protective system.** Refer to OSHA 29 CFR 1926 Subpart P for soil type definitions and protective system requirements.

a. **All soils will be classified as Type C soil** when designing protective systems, unless a geotechnical survey is conducted determining that the soil is more stable than Type C.
b. Regardless of soil type, the Contractor must provide a competent person with demonstrated soil classification experience to be on site during any excavation and trenching activity. The competent person shall be responsible for observing soil conditions during all phases of

excavation. If the competent person determines that the soil has become less stable than the original classification determined by the geotechnical survey, they shall have the duty and authority to stop work and require that additional protective measures be implemented.

c. Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/ or approved by a registered professional engineer.
d. Trenches 5 feet to 20 feet deep must use the protective methods described in part c or as provided in 29 CFR Subpart P Appendices A-E.
e. Trenches must be inspected daily and as conditions change by a competent person prior to worker entry to ensure elimination of excavation hazards.
f. Safe access and egress must be provided by the Contractor to all excavations including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet or deeper. These devices must be located within 25 feet of all workers.
g. Heavy equipment shall be kept a safe distance away from trench edges.
h. Surcharge loads must be kept at least 2 feet from trench edges.
i. Contractors are not permitted to work under raised loads or equipment booms.
j. Prior to beginning any excavation, digging, trenching or drilling operation, Contractors or Subcontractors, of any tier, must ensure that all underground utilities have been located and verified by the responsible parties. Testing shall be performed for low oxygen, hazardous fumes and toxic gases.
k. To aid in the prevention of falls, all vertical wall trenches and excavations over 6 feet deep will have a warning line erected 6 feet from the edge to prevent employees from approaching the edge, other than at access/egress points. "Danger- Fall Protection Required" signs must be placed.
l. Employees must be instructed to never approach a trench edge, other than at designated access points.
m. Where employees must approach the edge of a vertical trench wall over six (6) feet deep and a guardrail is not provided, other means of fall prevention must be provided.
n. Where employees must approach a trench edge that is not supported by a trench shield or similar, the competent person must perform and document an inspection immediately prior to approach to ensure there are no signs of potential trench failure. If there are any fissures, sloughing, undermining, or other signs, then employees may not approach the edge without supporting the excavation, or they must utilize another method such as a MEWP if safe.
o. For trenches less than six (6) feet deep, cones, barrier tape, or other means will be used to keep heavy equipment/vehicles from inadvertently approaching the excavation.
p. When using sloping for protection, Contractor must physically verify the slope is 1.5:1 using an inclinometer device.

10.12 Utility and Structural Component Damage Prevention for Underground Utilities and Buildings

The Contractor is responsible for complying with all regulations and other Contract Documents related to utility damage prevention. The Contractor shall take the contractually and regulatorily prescribed steps to make certain that all active, abandoned, or unknown utilities are identified. Such steps are to include the utilization of an individual or firm acceptable to the Contractor and knowledgeable in Subsurface Utility Engineering (SUE) techniques analyzing for above and below-ground utilities, and/or use of Ground Penetrating Radar or X-ray as required during building analysis.

a. Utility Damage Prevention Plans will be submitted as required in Section 6.3 prior to any excavation or penetrative work of the ground or any building structures.
b. All existing utilities depicted on the drawings, (which include but are not limited to: power, control, and communications cables; telephone, water and sewer lines; and other utilities) are shown in their approximate locations only.

c. Other utility lines may exist but not be depicted. It is the Contractor's responsibility to ensure that locations of all airport, FAA, public, and/or private utilities are established prior to work in the area.

10.12.1 Personnel Training for 3rd Party Utility Locates

Personnel performing locating services must be competent to perform utility designation in conformance with the National Utility Locating Contractors Association (NULCA) Standard 101 for Professions Competence Standards for Locating Technicians or other written standard acceptable DEN.

10.12.2 Prework Requirements for Structure Penetrations or Demolition

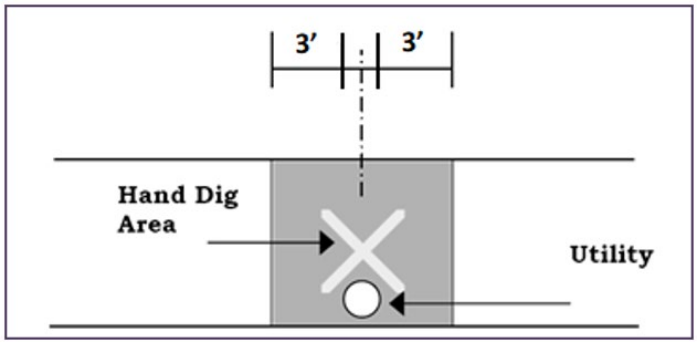
a. A 3rd Party SUE is required to scan all concrete walls and floors prior to penetration or coring activities. Utilities, rebar, and structural steel members will be marked. Where there are utilities mounted on the opposing surface, those will also be marked on the side where the penetration will occur. Markings will be made on the final prepared surface to be penetrated and not on coverings, such as carpet, that will be removed and thus remove the markings.
b. Where walls or ceilings need to be demolished, the contractor is responsible for exploratory utility confirmations prior to performing demolition in a manner that could result in injuries or damage to live utilities, such as use of saws, sledgehammers, or other equipment.
c. During interior work, where demolition is to occur, contractors must identify and indicate which utilities have been prepared (LOTO, disconnected, etc.) and are safe for demolition. Green tape will be used to indicate that utilities are ready for removal. Utilities will be marked every 25 feet and at least two times on either side of a wall, floor, or other penetration where there is a visual disconnect. Utilities will be verified safe for removal on both sides of such penetration, especially where multiple utilities are running. If an entire room or area is being demolished and all areas have been made safe for removal, then general signage alerting the room, entire wall, etc. is ready for demolition may be used and individual utility markings every 25 feet are not necessary.
d. Where vibration or demolition of an area may expose employees or the public below to falling debris, overhead protection will be put in place. Prior to work, contractor must always inspect the occupied spaces below for potential exposure and any indication of spalling, loose utility hangers, etc.
e. Any damage to utilities or conduit will be reported immediately to DEN ROCIP Safety Team and DEN Project Manager immediately.

10.12.3 Prework Requirements for Earth Penetrative Work

a. All manholes, risers, fire hydrants, or other above ground utilities must be marked with cones or encompassed with caution tape, so employees recognize them and avoid damage during construction operations.
b. Prior to any excavation, the Contractor shall lay out in the field the centerline of all proposed utilities. The Contractor shall white line (by white spray paint or other means acceptable to 811) the limits of construction including the area(s) to be excavated. The Contractor shall also identify the proposed placement of grounding rods and cathodic protection.
c. The Contractor shall identify the location of existing underground utilities on as-built drawings, including any unknown or abandoned utility found during construction. The Contractor shall ensure that all Airport officials, FAA technicians, other utility

owners/operators, and Colorado 811/Utility Notification Center of Colorado performing utility designation/location services designate/mark existing utilities within the construction limits as well as the entire path of excavation, plus five (5) feet to either side of proposed excavation limits. The Contractor shall be solely responsible for notifying relevant utility owners/operators and Colorado 811 sufficiently in advance to ensure that delays to construction does not occur.

d. After completion of the utility designation described above, the Contractor shall hire a third-party professional Subsurface Utility Engineering (SUE) or utility designation/locating company, acceptable to the DEN ROCIP Safety Team, to designate and sweep the entire excavation area, including five (5) feet to either side to confirm the locations of the marked utilities and identify and mark any additional unidentified utilities that may be within the limits of excavation.
e. Contractor shall expose all utilities that it will be crossing through non-destructive mechanical excavation methods such as vacuum excavation or similar mechanical method(s) ("potholing") approved by DEN, the contract requirements, or by hand digging.
f. When a cable is located, the Contractor shall hand-excavate a trench three (3) feet to each side of the exposed utility to verify that another cable is not adjacent to the exposed utility.



g. Life threatening utilities such as gas and electrical services, or operationally critical lines, such as for FAA communications, will be exposed through the entire length of the excavation by non-destructive methods.
h. All utilities will be exposed/daylighted/potholed to determine the exact depth and location prior to excavation with equipment. Pothole locations will be staked and marked with the physically verified depth. Where the work will require excavation within the three feet zone requiring hand digging, the top of the stake will be painted RED as a visual reminder to hand dig for employees performing the work.
    i. Gas, fuel, electric, fiber-optic, and FAA, other critical communication lines, or other high-hazard lines within five (5) ft of excavation work limits shall be potholed and marked at each limit, every 25 feet, and at changes in direction.
    ii. Sewer, water, and telephone/cable lines, or other low-hazard lines will be potholed at each limit and every one hundred (100) feet within the work area and at changes in direction.
    iii. Gas, electric, fuel, FAA or other high hazard/risk lines outside the excavation work zone, but within five (5) to twenty-five (25) feet of the outer limits, will be potholed at least once to verify Underground Service Alert markings and the utility plans accurately reflect their location.
i. Contractor shall continuously maintain utilities, facilities and/or systems that are or may be affected by work associated with the project. The Contractor shall provide the DEN ROCIP Safety Team with written reports on any utility damage

j. If the Contractor does not find an underground utility that was previously marked, the excavation shall be stopped, the Contractor's safety representative shall be contacted, and the Contractor shall contact the appropriate owner/operator of the utility, using the Colorado 811/Utility Notification Center of Colorado when warranted.
k. Every attempt shall be made to preserve the locate markings during excavation. Locate markings that are no longer visible shall be refreshed by calling the one-call system and/or the utility owners/operators for remarking.
l. All existing utilities that have been exposed during exploratory potholing or excavation must be supported to prevent stretching, kinking, or damage to the existing utility.

10.12.4 Prework Requirements for Concrete Panel or Asphalt Removal

This section applies to removal of concrete and asphalt layers, not the removal of substructure or base layers and treatments.

a. All manholes, risers, fire hydrants, or other above ground utilities must be marked with cones or encompassed with caution tape, so employees recognize them and avoid damage during construction operations.
b. Prior to any removals, the Contractor shall identify the location of existing underground utilities on as-built drawings, including any unknown or abandoned utility found during construction. The Contractor shall ensure that all Airport officials, FAA technicians, other utility owners/operators, and Colorado 811/Utility Notification Center of Colorado performing utility designation/location services designate/mark existing utilities within the limits of the removal. The Contractor shall be solely responsible for notifying relevant utility owners/operators and Colorado 811 sufficiently in advance to ensure that delays to construction does not occur.
c. Contractor will ensure that building ground grids are also marked for work near buildings.

10.12.5 Excavation and Concrete Panel or Asphalt Removal

a. Preserve, protect and maintain existing operable drains, sewers, and electrical ducts during grading, excavating and backfilling operations.
b. Ensure employees are aware that utilities may be embedded on the underside of concrete or asphalt and they should take extra care during removals where markings show they are present.
c. Where concrete or asphalt has to be removed around manholes, risers, fire hydrants, or other above ground utilities that are being preserved, the contractor must use tools to perform a relief cuts no closer than two feet around the utility to create a clean breaking point for heavy equipment removal. The remainder will be removed by hand and power tools.
d. Excavation made with heavy or power driven equipment is not permitted within three (3) feet of any known existing utility. Start hand excavation on each side of the indicated obstruction and continue until the obstruction is uncovered.
e. An observer shall be present to assist the equipment operator when operating equipment around known underground facilities and utilities. Adhere to the following during excavation:
    i. All mechanized excavation shall start with 6 to 10-inch depth excavation on the surface. The equipment operator shall immediately cease operation and notify the DEN ROCIP Safety Team and Project Manager if utility warning tapes, sand, or bedding material is uncovered at any time during excavation.

ii. All excavations within three feet of any pedestal, closure, riser guard, pole (with riser), meter, or other structure shall be performed by hand digging or other means such as vacuum excavating.
iii. If the Contractor discovers damage, causes damage, or even contacts an existing underground utility, the owner/operator of that utility, DEN Safety, and DEN Project Manager shall be notified immediately.
iv. If there is a critical or high priority utility line in the dig area, or if your 811 ticket response states that a utility owner must be present, make arrangements for the utility owner/operator to be on the job site during the excavation. If the utility owner/operator refuses to be present, document this response.

f. The Contractor shall coordinate on a daily basis with the excavator and the excavating work crew regarding the work to be performed that day with an emphasis on the underground utility damage prevention work plan and anticipated utility crossings.
g. Protect subgrade and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary. Protect subgrade and foundation soils from softening and damage by rain or water accumulation.
h. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
i. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

10.13 Hazardous Materials and Hazardous Waste

Hazardous materials or hazardous wastes are to be placed on spill containment pads or other secondary containment. An EPA ID number will need to be obtained for the hazardous wastes produced by the Contractors and/or Subcontractors. All hazardous wastes produced by the Contractors and/or Subcontractors must be removed from the project site by a licensed hazardous waste hauler. Such loads will need to be manifested and a copy of the manifest and the return manifest must be submitted to the DEN Project Manager**.**

Report any release of hazardous materials or hazardous wastes promptly to 303-342-4200 and the DEN Project Manager. If the release is of a reportable quantity, the responsible Contractor or Subcontractor, of any tier, will notify the appropriate regulatory agency after consultation with DEN Environmental Services. See the EPA List of Lists for chemical reportable quantities. Proper clean-up of hazardous materials waste will be done by the responsible Contractor or Subcontractor. Clean-up is to be done by properly trained personnel. Hazardous waste from the clean-up must be hauled away by a licensed hauler and disposed of at a properly permitted facility. Provide a copy of the company spill notification procedure to the DEN Project Manager.

Depending on the hazardous materials spilled, DEN may require the responsible Contractor or Subcontractor to sample the affected site and hire a certified laboratory to analyze an appropriate number of samples to test at their laboratory. A copy of the results is to be provided to DEN. Contractors or Subcontractors, of any tier, must inspect and document their hazardous material and waste storage areas at least weekly to ensure they are properly maintained.

DEN may randomly audit the labeling and storage of hazardous material and waste and the disposal of hazardous waste to verify that all Contractors and Subcontractors, of any tier, are fulfilling their roles as responsible parties.

All hazardous materials and hazardous wastes must be properly labeled and stored until removed from the project. Consideration shall be given to chemical compatibility prior to storage of chemicals. DEN may determine after SDS review, specific chemicals may be unsuitable for use due to physical properties that may endanger the environment, DEN property, and/or create potential exposures to adjacent workers or the general public. The Contractor will be required to work with DEN Project Manager and staff to locate an acceptable replacement chemical and or process.

10.14 Spill Prevention

Contractors will store petroleum products and hazardous materials at the construction yards in safe locations employing appropriate secondary containment and control measures. Secondary containment systems can include: a bermed area lined with an impervious material to provide a minimum containment volume equal to 110 percent of the volume of the largest storage vessel contained within the berm area; double walled tanks; secondary containment pallets, etc.

The Contractor will construct these containment structures to contain spilled or leaked liquids within the structures. The volume of the secondary containment will be 110 percent of the largest storage vessel or container volume. If earthen containment dikes are used, they will be constructed with slopes no steeper than 3:1 (horizontal to vertical) to limit erosion and provide structural stability. Containment areas will not have drains. Control measures may include updated stormwater management plans and site maps, properly stocked spill kits, or documented inspections.

The Contractor will visually inspect aboveground bulk tanks frequently and whenever the tank is refilled. Drain valves on temporary storage tanks will be locked to prevent accidental or unauthorized discharges from the tank. The Contractor will correct visible leaks in tanks as soon as possible. All fuel nozzles will be equipped with functional automatic shut-off valves. Prior to departure of any fuel tank truck, all outlets on the vehicle will be examined by the driver for leakage and tightened, adjusted, or replaced to prevent leaking while in transit.

Routine equipment maintenance of wheel-mounted vehicles such as oil changes will be accomplished at the Contractor yards or staging areas to the greatest extent practical. Routine maintenance of track-mounted equipment will be conducted in a manner to gather all oil and other discharges and removed from the project site to a suitable recycling or disposal site.

Where required, Contractors shall provide equipment diapers and/or drip pans to protect from environmental spills. The Contractor will maintain a minimum of 20 pounds of suitable commercial absorbent and barrier materials at each Contractor yard and on fuel and service trucks to allow rapid containment and recovery of a spill. In addition, fuel trucks will be equipped with shovels and an assortment of hand tools to aid in the containment of a spill.

Equipment will not be washed on the project sites. Equipment operators will be held responsible for prompt reporting and mitigation of any fuel or lubricant spills from their equipment. Two trained personnel will be present during refueling to reduce the potential for spills or accidents. If the equipment operator is used as one of the two trained persons on the site, that person should be directly involved with the refueling process (i.e., not just sitting in the equipment) so that he/she can respond immediately to any overfilling.

Equipment such as large stationary pumps may be fitted with auxiliary tanks as appropriate. Such auxiliary tanks will be placed within a secondary containment structure. Refueling of dewatering pumps, generators, and other small portable equipment will be performed using approved containers with a maximum volume of 10 gallons. Alternately, a pickup truck-mounted tank (up to 300 gallons)

may be used to fill the secondary fuel tanks provided the pump hose has an automatic cut-off sensor and provided the person conducting the refueling does not leave the filling location.

Before lubricants are drained from the construction equipment, a suitable containment vessel and plastic sheeting will be placed under the equipment to collect any spilled material. The Contractor will take necessary precautions to ensure that material that might accumulate on the liner does not spill on the ground surface.

The Contractor will appoint a Spill Coordinator who will be responsible for the reporting of spills, coordinating Contractor personnel for spill cleanup, subsequent site investigations, and associated incident reports.

10.15 Hazard Communication

Contractors are responsible for developing and implementing their own written Hazard Communication Program. They must also ensure the proper handling, labeling, use, and storage of these chemicals and provide access to Safety Data Sheets (SDS) for all employees.

As part of the written HAZCOM program, a site specific hazardous chemical list must be maintained. DEN or another Contractor may request copies of the most current SDS on a chemical being used by other Contractors/Subcontractors.

All chemicals being used during a task must be listed on the JHA or PPE Hazard Assessment and include all PPE requirements as stated on the SDS.

10.16 Confined Space Entry

Confined spaces include, but are not limited to, tunnels, manholes, utility vaults, pumping stations, storage tanks, process vessels, pits, vats, vaults or similar types of enclosures with limited access and without proper ventilation. Entry into confined spaces may be for the purpose of inspection, testing of equipment, maintenance (repair and cleaning) or an emergency. The characteristics of a confined space are:

a. A space that is large enough and so configured that an employee can enter and perform assigned work, and
b. A space that by design that has limited openings for entry and exit; and
c. A space not designed for continuous employee occupancy.

All confined spaces on DEN property are considered "permit-required confined spaces" unless Contractor requests a variance demonstrating that none of the below characteristics are or have the potential to exist and it is accepted by DEN. A permit-required confined space has one or more of the following characteristics:

a. A potential to contain a hazardous atmosphere
b. Material that can cause the engulfment of an employee
c. An internal configuration that might cause an employee to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section
d. Contains any other recognized serious health or safety hazard

Contractors must also consider the internal configuration of a space, whether there are obstructions or not. An unobstructed space has no obstacles, barriers, or obstructions within the space that rescuers have to climb over or around, or that rescue ropes and retrieval lines can snag on. An obstructed space

has some type of obstruction, such as equipment, baffles, walls, platforms or decks, additional stairs or ladders that rescuers have to climb over or around, or that rescue ropes and retrieval lines can snag on. Obstructed spaces also may have extra considerations for ventilation.

10.16.1 Entering A Permit-Required Confined Space

Entry is defined as occurring when any part of the body passes through the opening of a confined space. Prior to entry, an entry permit should be completed and signed by the entry supervisor verifying that the space is safe to enter. The entry permit must also be posted at the entrance or otherwise made available to entrants before they enter the permit space.

The contractor must complete their daily confined space entry permit before an employee enters a confined space – this permit must be posted at or near the confined space. Permits are valid for one shift only – a new permit must be completed for the next shift. The Contractors' Daily Confined Space Permit shall contain the following types of specific information concerning:

a. Identification of space
b. Purpose of entry
c. Date and duration of permit
d. List of authorized entrants
e. Names of current attendants and entry supervisor
f. Indicate if multiple employers are entering concurrently, and coordinate entry operations
g. The hazards of the permit space to be entered
h. The measures used to isolate the permit space and eliminate or control hazards
i. The acceptable entry conditions
j. The results of atmospheric monitoring, documented initially, following initial ventilation when in use, every two (2) hours during entry, and upon closing of the daily permit.
k. Rescue and emergency services that can be summoned and the means for summoning those services
l. The communication methods used by entrants and attendants to maintain contact
m. Any other safety information necessary for the specific space
n. Any additional permits, such as for "hot work" (welding)

The entry permit is the document that certifies that the Contractor complies with the requirements of the standard for entries in permit required confined spaces. Also, the entry supervisor must close off the space and cancel permits when an assignment has been completed or when prohibited conditions exist. All new conditions must be noted on the canceled permit and used in revising the permit space program.

10.16.2 Air Monitoring

Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable conditions exist for entry into that space. The contractor must test the atmosphere within a confined space using equipment that is designed to detect the chemicals that may be present. Evaluation testing is done to:

a. determine what chemical hazards are or may become present in the space's atmosphere, and

b. identify what steps must be followed and what conditions must be met to ensure that atmospheric conditions are safe for a worker to enter the confined space.

Before a permit space that may have a hazardous atmosphere can be entered, the atmosphere must be tested using the steps identified on the permit developed during evaluation testing. Verification testing is done to make sure that the chemical hazards that may be present are below the levels necessary for safe entry, and that they meet the conditions identified on the permit. Test the atmosphere in the following order: (1) for oxygen, (2) for combustible gases, and then (3) for toxic gases and vapors. The testing results -- the actual test concentrations -- must be recorded on the permit near the levels identified for safe entry. **For all airfield confined spaces and confined spaces between outbound Pena Boulevard and the airfield fence, benzene must be tested for and included on Contractor daily entry permits**, in addition to other hazards that may be identified during evaluation testing.

It is important to remember that some gases or vapors are heavier than air and will settle at the bottom of the confined space. Also, some gases are lighter than air and will be found around the top of the confined space. Thus, during the sampling process it will be necessary to test all areas (top, middle and bottom) of the confined space. Per OSHA 1910.146 App B, when monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope must be tested a distance of approximately 4 feet in the direction of travel and to each side. Contractor must use a probe and pump draw to accurately record atmospheric readings on their daily permit. Lowering monitors into a confined space does not allow for accurate readings of potential issues that may approach limits prior to entry.

Water can also trap gases that are then released when disturbed. In sewers, other areas which are part of a continuous system, or where new hazards may enter at any time, continuous air monitoring must be conducted.

10.16.3 Ventilation

If the atmosphere is found to lack oxygen, or contain toxic gases and vapors, the space must be ventilated before entry. An air powered ventilator placed at the top of the opening can blow breathable air into the space. Never assume that the space is safe until it is monitored again. Ventilation shall continue while the employee is working in the space. A trained person must determine whether the air must be supplied, exhausted, or both.

The air intake should be placed in an area that will draw in fresh air only. Ventilation should be continuous where possible, because in many confined spaces the hazardous atmosphere will form again when the flow of air is stopped.

The forced air ventilation must ventilate the immediate areas where an employee is or will be present within the space and continue until all employees have left the space. Contractor shall ventilate confined spaces in accordance with American Industrial Hygiene Association recommended practice of at least 20 air changes per hour (ACH), or more as determined necessary by the Contractor.

10.16.4 Protective Equipment

Personal protective equipment shall be used to protect workers only after all other feasible means have been used to control or eliminate hazards. A full body or chest harness and a lifeline should be used when entering a confined space.

In some situations, a respirator will also be needed. A respirator will allow the employee to breathe without inhaling toxic gases or particles.

Air-purifying respirators can filter dangerous substances from the air, but they provide no protection in an oxygen deficient environment and shall not be used when working in a confined space that is oxygen deficient. Only air-supplying respirators (SAR/SCBA) should be used in confined spaces that have low oxygen levels or high levels of toxic gases.

In vertical entries, the safety harness should be attached to a retrieval device that will allow quick removal of an employee in the event of an emergency. In the event of an emergency, the attendant located on the outside should be able to initiate a rescue without entering the space.

Hard hats, safety goggles, face shields, gloves, safety boots, disposable suits, earplugs or muffs, non-sparking flashlight and tools may also be needed when entering a confined space.

10.16.5 Rescue

In order to facilitate rescue without having a rescuer enter a space, the Contractor must require the use of "non-entry" rescue, retrieval systems or methods, such as tripods and winches to lift unconscious or injured entrants out of a space that is more than five feet deep.

10.16.6 Training

Proper training, careful preparation and good judgment are essential to safe confined space entry. The Contractor is required to provide initial and refresher training to equip employees with the understanding, skills and knowledge necessary to perform the confined space entry safely.

Training must be provided to each affected employee before the employee starts performing assigned duties in confined spaces and must be certified by the Contractor. Authorized entrants, attendants, supervisors and rescuers require different levels of training according to their specific duties and responsibilities.

Where confined spaces exist on a project, all employees regardless of duties, shall be trained during orientation on how to identify confined spaces and who to contact for questions about confined spaces.

10.17 Tunneling in Construction

All underground tunnels, shafts, chambers and passageways being constructed must comply with 29 CFR 1926.800. Where employees have to perform tunnel entry the following applies.

a. For check-in/check-out procedures, contractors that utilize a peg board, they must also **include a physical document that employees use their signature to sign in and out and document the date and time**. The board may only be used for quick reference. **The board and sign-in sheet must list**

the person on duty above ground that is responsible for calling for assistance and maintaining a count of employees underground.

b. Every employee working underground must have a portable hand lamp or cap lamp for emergency use.
c. If natural ventilation does not provide the necessary air quality through sufficient air volume and air flow, the employer must provide mechanical ventilation to ensure that each employee working underground has at least 200 cubic feet of fresh air per minute.
d. Contractor must use an anemometer or flowmeter to ensure proper airflow and document the results every 2 hours.
e. Contractor must provide written safe operating procedures and inspection requirements for Tunnel Boring Machines (TBMs) and other custom devices/machines.
f. Only enough fuel gas and oxygen cylinders for welding, cutting, or hot work during a 24-hour period are allowed underground.
g. If using diesel-powered engines on mobile equipment in the tunnel, Contractor must test for diesel particulate matter to ensure it remains below MSHAs PEL of 308 micrograms/m3.
h. After verifying oxygen levels, the competent person must test all underground work areas for carbon monoxide, nitrogen dioxide, hydrogen sulfide, and other toxic gases, dusts, vapors, mists, and fumes as often as necessary to ensure that levels remain within permissible exposure limits. **Contractors may not rely solely on visual observance of dust to determine if controls are adequate. Once tunnel progress is between 50 and 100 LF, Contractor will have their competent person perform quantitative testing on employees that are working inside the tunnel for general dust and silica**, and any other potential contaminants identified by the Contractor from 29 CFR 1926.55. If exposure is over the PEL, the engineering controls will be adjusted, and Contractor will retest. If at any point, controls are changed, including lowered ventilation flowrate, Contractor will also retest.
i. The competent person must also test all underground work areas for methane and other flammable gases to determine whether the operation must be classified as potentially gassy or gassy.
j. When air monitoring reveals the presence of 5 ppm or more of hydrogen sulfide, the affected underground areas must be tested at the beginning and midpoint of each shift until the concentration is measured at less than 5 ppm for three consecutive days.
k. Smoking in tunnels and shafts is prohibited. Designated smoking areas must be at least 150 feet from shafts, tunnel openings, ventilation equipment, break areas, and any flammables or combustibles. Employees smoking in any prohibited areas will be removed from site.

10.18 Silica

The following activities may cause crystalline silica dust to be present in the air:

- Sawing, hammering, cutting, drilling, grinding, and chipping of concrete or masonry
- Chipping, hammering, and drilling rock
- Dry sweeping or pressurized air blowing of concrete, rock, or sand dust
- Crushing, loading, hauling, and dumping rock
- Sandblasting
- Demolition of concrete and masonry structures and fireproofing
- Concrete mixing
- Working with ceramics, clay, and pottery

10.18.1 Silica Safe Work Practices

The primary means of protecting workers are using less toxic materials, enclosed systems, local exhaust ventilation, wet methods, and good work practices. Silica sand or other

substances containing more than 1% crystalline silica will not be used for abrasive blasting. Good personal hygiene will be practiced to avoid unnecessary exposure. Eating, drinking, use of tobacco products, or applying cosmetics will not be done in areas where there is dust containing crystalline silica. If possible, employees will shower and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas.

Contractor shall use OSHA 1926.1153(c)(1) —Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica or assess exposure of each employee in accordance with either the performance option in paragraph OSHA 1926.1153(d)(2)(ii) or the scheduled monitoring option in paragraph OSHA 1926.1153(d)(2)(iii).

Methods of reducing worker exposure to silica may include the following:

a. Wet down the dust at the point of generation.
b. Install local exhaust ventilation to prevent dust from being released into the air.
c. During rock drilling, flow water through the drill stem.
d. Install dust collection systems onto machines or equipment that generated dust.
e. Use concrete/masonry saws that provide water to the blade. Water may be used to suppress dust produced by pneumatic, hydraulic, or gasoline-powered saws. Water is typically applied to the blade through one or two nozzles to suppress dust emissions. Water may be supplied from a portable pressurized tank or a hose. The recommended flow rate is 0.5 liters (17 ounces) of water per minute to suppress dust. Less water will not be as effective.
f. When using vacuum cleaners, the vacuum should have the following features:
    i. Enough flow rate to capture the dust and transport it to the vacuum source. One study showed that an air flow rate of 70 cubic feet per minute (cfm) was required to achieve effective dust control.
    ii. High-efficiency particulate airs (HEPA) filter to reduce the chances of releasing dust containing RCS from the vacuum into the worksite.
    iii. A pre-filter or cyclone to increase the length of service of the HEPA filter.
    iv. A filter replacement indicator, such as a pressure gauge. If the vacuum cleaner does not have a pressure gauge, workers can monitor the air flow by checking to see if a dust plume is escaping from around the shroud.
    v. The ability to clean and replace filters and full collection bowls or bags without exposing the operators to dust.
    vi. A motor that draws at least 10 amps.

The above measures will be required to protect the public, adjacent workers, and DEN facilities as necessary.

10.18.2 Air Monitoring

The Contractor will inspect each work operation to determine if employees are exposed to silica above the PEL. Indicators that an evaluation of employee exposure should be undertaken include:

a. Information or observation which would indicate employee exposure to silica.
b. Employee complaints of symptoms which may be attributed to exposure to silica.
c. Change which may result in an increase in the airborne concentration of silica.

The Contractor will conduct air monitoring to measure worker exposures and ensure that engineering controls and respiratory protection provide adequate protection. Air

monitoring information will be made available to workers and DEN. If employees are exposed to silica in excess of the PEL, engineering controls should be adjusted, and monitoring will be repeated until results show that controls are working to keep exposures below the PEL.

10.18.3 Training

Maintain a certified list all employees that have been trained about health effects of silica exposure, engineering controls and work practices that reduce dust, the importance of maintenance and good housekeeping, as well as the proper type and fitting of respirators. Also include a statement for each employee whether that employee is or is not enrolled in a medical surveillance program.

10.19 Respiratory Protection and Supplied Air

Contractor and Subcontractors who require or permits employees to wear a respirator must have a written respiratory protection program that complies with 29 CFR 1926 Subpart E. The written respiratory protection program shall establish standard operating procedures concerning the use and maintenance of respiratory equipment. In addition to having such a written program, the Contractor must also be able to demonstrate that the program is enforced and updated as necessary. All affected employees shall be trained on the written respiratory protection program and it shall be available to employees on site. The plan shall include:

a. A written statement of company policy, including assignment of individual responsibility, accountability, and authority for required activities of the respiratory protection program.
b. Written standard operating procedures governing the selection and use of respirators.
c. Respirator selection (from NIOSH/MSHA approved and certified models) on the basis of hazards to which the worker is exposed.
d. Medical examinations of workers to determine whether or not they may be assigned an activity where negative pressure respiratory protection is required.
e. Employee training in the proper use and limitations of respirators (as well as a way to evaluate the skill and knowledge obtained by the worker through training).
f. Respirator fit testing.
g. Regular cleaning and disinfecting of respirators.
h. Routine inspection of respirators during cleaning, and at least once a month and after each use for those respirators designated for emergency use.
i. Storage of respirators in convenient, clean, and sanitary locations.
j. Surveillance of work area conditions and degree of employee exposure (e.g., through air monitoring).
k. Regular inspection and evaluation of the continued effectiveness of the program.

For supplied air respirators and self-contained breathing apparatus, OSHA specifies that compressed breathing air must be Grade D air that meets the American National Standards Institute (ANSI)/Compressed Gas Association (CGA) Commodity Specification for Air, G-7.1-1989.

a. Cylinders must have a certificate of analysis from the supplier indicating they meet this requirement.
b. Compressed air used for breathing applications must be tested initially at system set-up, **and at a minimum, every 90 days**, and after any maintenance or repairs, or at a higher frequency as determined by manufacturer or contractor based on potential for contamination.

Table of Respiratory Protection Requirements for various respirators are included for contractor reference only. *Please see 29.CFR.1910.134 for complete and up-to-date requirements.*

29.CFR.1910.134 Requirements	Filtering Facepiece (N95)	Elastomeric Half and Full-Face Respirators	Half-Mask and Full-Face Particulate and Vapor Cartridge Respirator	Powered Air-Purifying Respirator (PAPR)	Self-Contained Breathing Apparatus (SCBA) and Supplied Air (SAR)
Written Program	No	Yes	Yes	Yes	Yes
Medical Evaluation	No	Yes	Yes	Yes	Yes
Fit-Testing	No	Yes	Yes	No	Yes-Must be Quantitative
Training	Initial	Initial/Annual	Initial/Annual	Initial/Annual	Initial/Annual
Clean, Inspect and Maintenance	Disposable	Yes	Yes	Yes	Yes

10.20 Electrical

a. Only qualified electricians may perform electrical work.
b. Temporary electrical service shall be installed and maintained to conform to all of the requirements along with all applicable provisions of the NESC, NEC, and OSHA.
c. Where required, appropriate warning signs will be posted. All temporary components shall be plainly marked to indicate the maximum operating voltage.
d. All circuits shall be protected against overload and grounded with Ground Fault Circuit Interrupters (GFCI) provided for temporary outlets.
e. When using permanent power, a GFCI "pigtail" device will be required between the power source and the extension cord.
f. Flexible temporary cord and light sets shall be hard service or junior hard service usage for construction as specified in NEC Table 400.4.
g. Non-metallic sheathed cable shall not be used for temporary service on the project.
h. Temporary power cords of any size shall not be spliced.
i. Electric wire and flexible cord passing through work areas shall be protected from damage (including that caused by foot traffic, vehicles, sharp corners, protections, and pinching) by elevating them or protecting them with covers.
j. Flexible cords and cables passing through holes shall be protected by bushings or fittings.
k. Temporary electrical distribution systems and devices shall be checked and found acceptable for polarity, ground continuity and ground resistance before initial use and before use after modification.
l. Temporary power boxes and GFCI's shall be tested monthly and documentation of tests for each device shall be made readily available for employee review on or near devices.

10.20.1 General Lock-Out Information

a. A Method of Procedure that is in compliance with 29 CFR 1910.147 must be submitted to DEN for acceptance. See Section 6.3.xxx.
b. Padlocks, hasps, tags, and other lock-out devices must be durable enough to withstand the environment to which they will be exposed.
c. Locked-out switches, valves, etc., must not be operated regardless of the circumstances.
d. Only the employee, who placed the lock on the switch, valve, hasp, etc., can remove it. Anyone who removes or defeats another's lock-out is subject to removal from the project site.

e. Locked-out switches, valves, etc. must be inspected at the beginning of each shift to ensure that the locks and tags are still in place.

10.20.2 Lock-Out Procedures

The procedures used for energy isolation, be it electrical, mechanical, hydraulic, pneumatic, or other types, need to be both uniform and coordinated. ROCIP has adopted the following procedures which must be communicated to Contractors, Subcontractors, and employees. Make sure they are aware of, understand, and follow these lock-out procedures and cooperate with other Contractors who require a lock-out that involves your work. Note that ROCIP requires the use of lock-out energy isolation devices (that is, using padlocks) throughout a project. Tag-outs (simply tagging the switch, valve, etc.) will not be used.

10.20.2.1 Individual Lock-out Procedures

This procedure is used in the event power is either interrupted or restored unexpectedly. If interrupting or restoring power unexpectedly will endanger an employee of any other Contractor, including your own Subcontractors, use the steps in the Complex Lock-out Procedures that follow. Only an authorized employee shall perform the following steps:

a. Notify affected employees of the lock-out and the reason for it.
b. Shutdown the affected equipment in a manner consistent with good operating practices.
c. Verify that the equipment or system is inoperative.
d. Shutdown the power at the switch, valve, etc., that will be locked. Be absolutely certain the correct device or devices to shut down and lock were located.
e. Safely dissipate any stored energy in pressure lines, flywheels, capacitors, etc., consistent with good operating practices.
f. Lock the switch, valve, etc., using a padlock with only one key. Make sure the company name is on the lock.
g. Complete and place on the lock a standard lock-out warning tag indicating what power source was shutdown, the date of the shutdown, authorized employee's name, and the company's name.
h. Verify that the equipment or system is inoperative by trying to start it. (Do not forget to turn all controls back to their off or neutral position).
i. Complete and file on site a Lock-Out Documentation form
j. When power is ready to be restored, replace all missing guards. Ensure that no one will be endangered by power restoration prior to removing the lock.
k. After removing the lock, remove and properly destroy the warning tag. (Tags and their attachment devices are not to be reused unless designed for reuse).

10.20.2.2 Complex Lock-out Procedures

This procedure must be used when one or more employees of another Contractor or Subcontractor may be exposed to danger in the event power is either interrupted or restored unexpectedly. Only an authorized employee shall perform all of the following steps as the originator of a complex lock-out. Every affected Contractor (including affected Subcontractors) is to have an authorized employee to coordinate the lock-out for their company.

a. Notify all affected employees of the lock-out and the reason for it.
b. Shutdown the affected equipment in a manner consistent with good operating practices and have each affected Contractor and Subcontractor do likewise.

c. Verify that the equipment or system is inoperative by trying to operate it and have each affected Contractor and Subcontractor do likewise.
d. Shutdown the power at the switch, valve, etc., that will be locked. Be absolutely certain the correct device or devices to shut down and lock were located.
e. Safely dissipate any stored energy in pressure lines, flywheels, capacitors, etc., consistent with good operating practices and, as necessary, have each affected Contractor and Subcontractor do likewise.
f. Place a chain or lock-out device on the switch, valve, etc., that will be locked.
g. Place a chain or lock-out device using a padlock with only one key. Make sure the company's name is on the lock.
h. Once all the valves and switches are locked out, place all the keys for all the locks in the group lock-out box.
i. The authorized employee then places a group lock-out device (Christmas tree) on the hasp and places his lock on the group lock-out device. Each employee must place his/her personal lock, with his or her name on the lock, on the group lock device.
j. Complete and place on the lock a standard lock-out warning tag indicating what power source was shutdown, the date of the shutdown, authorized employee's name, and the company's name.
k. Verify that the equipment or system is inoperative by trying to start it and have each affected Contractor and Subcontractor do likewise. (Do not forget to turn all controls back to their *off* or *neutral* position).
l. Complete and file on site a Lock-Out documentation form.
m. When power is ready to be restored, replace all missing guards. Each affected employee must remove their lock when their work is completed. The authorized employee then removes his or her lock and removes the keys from the lock box and begins to restore the equipment to working condition. As the originator of the lock-out, the authorized employee will always remove their lock last. This is only after it has been determined that no one will be endangered by power restoration.
n. Restore power.
o. After removing the lock, remove and properly destroy the warning tag. (Tags and their attachment devices are not to be reused unless designed for reuse).

10.20.3 Energized Electrical Work

This section applies to any Contractor/Subcontractor who enter or plan work within a Limited Approach Boundary or an Arc Flash Boundary when there are exposed electrical hazards from electrical conductors or circuit parts that are or can become energized. This does not apply to 50 volts or less if there is no increased exposure to electric burns or explosion due to an arc flash. The Contractor shall develop an energized work procedure that includes the following guidelines for review by the DEN ROCIP Safety Team:

Energized parts to which personnel might be exposed must be put into an electrically safe work condition and lockout/tagout (LOTO) unless:

a. De-energizing the equipment introduces additional or increased hazards
b. The component is an integral part of a continuous process and would require that the entire process be shut down in order to work on the piece of equipment; or
c. Shutdown is infeasible due to equipment design or operational limitations, including the need to perform diagnostics and testing (e.g., start-up or troubleshooting) of electric circuits that can only be performed with the circuit energized.

Anyone working on or near energized electrical conductors or circuit parts greater than 50 volts must have the following:

a. Training – Electrical Safety, NPFA 70E, CPR, LOTO Authorized
b. Authorization – by the Contractor, in the case of a Subcontractor employee it must be the authorized by the Contractor
c. Permits – An energized work permit or approved equivalent procedure.

The Contractor/Subcontractor plans all energized electrical work using an approved electrical work permit. The planning may be as simple as a discussion among the electrical workers reviewing the job, or as complex as a specific procedure with multiple engineering reviews. Planning must include:

a. Information about the equipment and the installation
b. Voltage levels, power availability which might be delivered into an arc flash
c. The Flash Hazard/Risk Category for arc-flash rating of the PPE (cal/cm2). Hearing protection must be worn by employees in the arc flash boundary or at distances they may be exposed to the percussive effects.
d. Any additional requirements necessary to perform the work, including, if required, additional training
e. Applicability of the two-person rule. **Two Person Rule**. A second qualified person, knowledgeable in rescue techniques to the level taught in Electrical Safety, NFPA 70E and CPR qualified, is required when ANY of the following criteria exists:
    i. Performing work within the Arc-Flash Boundary of exposed live parts that has an arc-flash Hazard/Risk Category of 3 or 4;
    ii. Operating switches or breakers with an arc-flash Hazard/Risk Category of 4;
    iii. Any time there are exposed live parts with >250V but <600V and when either of the following exists:
        - A barricade is not established
        - When performing tasks where there are multiple sources of exposed live parts with voltage >50V (e.g., multiple terminal strips, including some control panels and power supplies). Examples:
            - Two persons NOT required: Hazard Risk Category is less than 3 AND a single source of exposed voltage, such as a manually operated disconnect switch. (One set of 3 phase connections is considered a single source.)
            - Two persons required: Multiple sources of exposed voltage, such as a control panel with 480V exposed terminal lugs and 120V control terminals, regardless of which one is being worked on.
            - Any time work planning, including worker-planned work, determines the need for two-persons to perform a given task. The second person must wear the appropriate PPE if assisting the primary worker in the same control zone. Note: The second person may operate breakers and switches without an additional second person if an emergency should arise.

The Contractor must review permits and ensure that all personnel working under the permit:

a. Are qualified for the type and energy levels on the permit
b. Have signed the permit
c. Maintain currency of training
d. Receive a pre-task planning briefing and understand the hazards associated with this task by discussing the following during JHA development:

i. Limits of the permit, especially limits of only testing with TTVM permit
ii. PPE for various tasks
iii. Any job specific or general work practices to be observed.

The Contractor issuing the work permits for employees or Subcontractors must sign the permit and ensures that:

a. A log is kept for auditing purposes.
b. Periodic walkthroughs or field checks are conducted to verify the following:
   i. Workers are qualified
   ii. Compliance with procedure or permit
   iii. Proper PPE

The Contractor/Subcontractor employee who performs the energized work must do the following:

a. Prior to starting work:
   i. Review the work plan/permit and inform those involved with the work and those nearby who could be impacted that work will begin.
   ii. Establish safety barriers to keep unprotected personnel out of the arc flash control zone and shock hazard control zones.
b. While performing the work:
   i. Perform the work in accordance with conditions on the permit and with procedures
   ii. Perform any necessary testing.
c. After completing the work:
   i. Replace any physical barriers which were removed in order to do the work
   ii. Inform those involved and those nearby who could have been impacted that the work has been completed and conditions are safe
   iii. Remove the safety barriers and all tools, equipment, and scrap.

10.21 Steel Erection

Steel erection requires compliance with the following:

a. **100% fall protection provisions, such as lifeline attachments, dynamic fall restraints and other such devices shall be considered during shop drawing preparation and incorporated into fabricated pieces.**
b. The use of a Controlled Decking Zone (CDZ) is not permitted to be used as a primary fall protection method. CDZ can be used in combination with conventional fall protection methods (PFAS)
c. **Lifelines or other fall protection devices shall be attached prior to erection where possible**.
d. Employees of Contractors and Subcontractors, of any tier, must comply with the fall protection requirements covered earlier in this section.
e. The running length of wire rope protection, when used for perimeter protection, shall not exceed two bay widths or 24 feet, and will be equipped with support stanchions every 8 feet to maintain the required deflection.
f. A turnbuckle may be installed for maintenance of the perimeter protection to keep tight: a minimum of 3 Crosby clamps will be installed and torqued to specification. The use of lap joints is prohibited.
g. When Christmas Treeing, only 3 pieces shall be allowed and a multiple lift rigging assembly shall be used.
h. The Contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers and walls or the mortar in masonry piers and walls has attained, on the basis of

an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

i. Pre-planning shall be conducted and documented for landing deck bundles and installing the perimeter protection for interior/exterior fall hazards.
j. All columns shall be anchored by a minimum of 4 anchor rods (anchor bolts).
k. All columns shall be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it shall be installed.
l. Anchor rods (anchor bolts) shall not be repaired, replaced or field-modified without the approval of the project structural engineer of record. Prior to the erection of a column, the Contractor shall provide written notification to the steel erector if there has been any repair, replacement or modification of the anchor rods (anchor bolts) of that column.
m. Conduct and document appropriate pre-task planning and a job hazard analysis for all steel erection. Keep this documentation on site for review by DEN.

10.22 Wet Work

Wet work is an activity involving the use of water or liquid on a project's plumbing, drainage, fire suppression, or mechanical systems. Contractor must complete the Wet Work Daily Permit (WWP) found in Appendix C.12. Like a Hot Work Daily Permit, the wet work permit outlines the procedure to be followed each specific time that people are working with water inside a building.

a. Identify personnel to monitor the site during the shift and to ensure that there are no leaking systems at the end of each shift.
b. The work area must be continuously or frequently monitored to check for leaks. For high-risk activities like system pressurization, a trained "water watch" must be maintained for at least 30 minutes after completion.
c. Review where floor drains or penetrations lead to. Make sure they are connected to an adequate collection system in case liquids are spilled into them (won't pour down on top of people and equipment below). Make sure they aren't connected to something that could plug up and back feed water or that stormwater can't back up out of the drain or penetration.
d. Where pumps are required, ensure they are gas/propane powered, or electric pumps have a backup generator or electrical supply.

10.23 Hot Work

Hot work operations include tasks such as welding, brazing, torch cutting, grinding, and torch soldering. These operations create heat, sparks and hot slag that have the potential to ignite flammable and combustible materials in the area surrounding hot work activities. In addition to the Contractor's Hot Work Permit, a permit must also be obtained from the Denver Fire Department, and all provisions adhered to.

10.23.1 Hot Work Permit Procedure

The Contractor will develop a hot work permit procedure and include provisions at least as protective as the standards found in Section 10.23.2. The hot work permit procedure will be reviewed with all impacted employees and available on site at all times. Hot work permits must be completed for each shift and location performing hot work and updated as necessary throughout the shift operations.

10.23.2 General Requirements

a. Work should be performed using alternative methods other than hot work whenever possible.
b. Hot work should be performed in designated hot work rooms whenever it is practical.
c. A Hot Work Permit is valid for one day and one area and shall be posted in the area of hot work for the duration of the activity. See Appendix C.11 for Sample Hot Work Permit
d. A copy of every permit shall be maintained onsite and readily available for review.
e. Hot Work Permit must be posted in the area where hot work is to be performed.
f. Employees who perform hot work operations must always obtain a Hot Work Permit before beginning hot work.
g. A Fire Watch is posted to monitor the safety of hot work operations and watch for fires.
h. Fire Watches are posted during hot work, and for at least 60 minutes after hot work has been completed. Any employee who has successfully completed hot work safety training can serve as the Fire Watch.
i. All flammable and combustible materials within a 35-foot radius of hot work must be removed. When flammable and combustible materials within a 35-foot radius of hot work cannot be removed they must be covered with flame retardant tarps and a fire watch must be posted.
j. Floors and surfaces within a 35-foot radius of the hot work area must be swept free of combustible dust or debris.
k. All openings or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames must be covered.
l. Two fire extinguishers (minimum 10 lbs. each) of the appropriate type must be readily available and accessible with at least one being within reach of the worker performing the welding, cutting or brazing activity.
m. Entire building smoke detection, alarm systems, and sprinklers may not be shut down to perform hot work without a shut down request and 24/7 fire watch for the duration of the shutdown. All work must be coordinated in advance with DEN in accordance with the contract.
n. Adjacent workers, the general public, and DEN facilities must be protected during hot work.
o. The contractor is required to adhere to their respiratory program PPE requirements and SDS identified hazards for PPE selection.
p. It is required that battery-charging installations have a minimum space separation of 10 feet and preferably 20 feet from any combustibles.
q. Contractor will refer to their Denver Fire Department permit for more requirements.

10.23.3 Welding and Cutting

Recommended and required (where indicated) safe practices:

a. A welder shall wear:
    i. Safety steel-toed boots, preferably high-top ones because low-cut boots and shoes put you at a higher risk of catching slag that is hot. (Required)
    ii. Helmets or any other head gear to protect from sharp and falling objects. (Required)
    iii. Goggles or helmets to protect your eyes from the transmission of radiant energy being emitted by the welding tool. (Required)
    iv. Hearing protection as necessitated by noise levels.
    v. Respirators to prevent inhalation of hazardous fumes, dust and gases as necessitated by exposures.

b. A welder shall remove flammable clothing and should wear protective gear to shield their entire body using the following examples:
    i. Aprons that are made from flame-resistant material.
    ii. Greater protection can be obtained from reflection under the face shield if clothing with the dark colors are worn. Clothing made of wool is also preferred over clothing made of cotton because wool can resist deterioration better than cotton. Pants should not have pockets on the front that may catch sparks.
c. Welding indoors creates greater hazards and risks associated with ventilation and respiratory requirements.
    i. When welding mild steels, mechanical ventilation of at least 2,000 CFM per welder is required when there is a space of less than 10,000 cubic feet (approx. 22'x22'x22') per welder or when working within 16-ft of the ceiling.
    ii. For any work on metals other than mild steel, or in any spaces with structural barriers preventing cross ventilation or in confined spaces, mechanical ventilation is required.
    iii. Regardless of the space, combustible materials must be at least 35 feet away, with no combustible materials in concealed spaces on the opposite side of walls or floors. (OSHA 29 CFR 1910.253)

10.23.4 Electric Arc Welding

a. Screens, shields, or other safeguards should be provided for the protection of men or materials, below or otherwise exposed to sparks, slab, falling objects, or the direct rays of the arc.
b. The welder shall wear approved eye and head protection. Workers assisting the welder shall also wear protective glasses, head protection and protective clothing.
c. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
d. Electric welding equipment, including cables, shall meet the requirements of the National Electric Code.
e. All arc welding and cutting cables shall be of the completely insulated flexible type capable of handling the maximum current requirements of the work.
f. Cables in need of repair shall not be used.
g. Welding leads shall not be repaired with tape or by any other means.
h. Leads shall be inspected before each use, leads in need of repair will be tagged "do not use" and taken off the project site at the end of the day's work shift.
i. The frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable connecting the circuit connector or through a separate wire which is grounded at the source of the current. All ground connections shall be inspected to ensure that they are mechanically strong and electrically adequate for the required current.
j. Welding practices shall comply with all applicable regulations.

10.23.5 Gas Welding or Cutting

a. All hose used for carrying acetylene, oxygen or other fuel gas shall be inspected at the beginning of each working shift. Defective hose shall be removed from service.
b. Oxygen cylinders and fittings shall be kept away from oil and grease. Oxygen shall not be directed at oily surfaces, greasy clothes or hands.
c. Regulators, gauges, backflow check valves, and torches shall be kept in proper working order.

d. Appropriate personal protective equipment, such as burning glasses, shields, and/or gloves shall be used. Adequate exhaust ventilation shall be maintained at all welding and cutting work areas.
e. All oxygen/acetylene setups shall have a “flashback” arrestor check valve at the regulators, not at the torch head.
f. Check valves shall be tested for proper function at least every six months and documentation of the test shall be readily available upon request.

10.23.6 Compressed Gas Cylinders

a. When gas cylinders are stored, moved, or transported, the valve protection cap shall be in place. All cylinders must be thoroughly inspected for defects, damage, and deficiencies prior to acceptance to the worksite.
b. All workers inspecting, handling, and using compressed gas cylinders must have completed training as required by OSHA.
c. When cylinders are hoisted, they shall be secured in an approved cage or basket. The valve cap shall never be used for hoisting. All cylinders shall be stored, transported, and used in an upright position. If the cylinder is not equipped with a valve wheel, a key shall be kept on the valve stem while in use.
d. Cylinders should be transported using hand trucks designed for that purpose.
e. Gas cylinders shall be properly secured at all times to prevent tipping, falling or rolling. They can be secured with straps or chains connected to a wall bracket or other fixed surface, or by use of a cylinder stand.
f. Oxygen cylinders (empty or full) in storage should be separated from fuel-gas cylinders and combustible materials by a minimum distance of 20 feet or by a barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
g. Full and empty cylinders of all gases should be stored separately and identified by signs to prevent confusion.
h. Close valves on empty cylinders and mark the cylinder "empty" or "M.T."
i. At the end of each work day or if work is suspended for a substantial period of time, compressed gas cylinder valves shall be closed, regulators removed and properly stored.
j. Cylinders containing oxygen, acetylene, or other fuel gas shall not be taken into confined spaces.
k. Cylinders containing oxygen, acetylene, or other fuel gas shall be stored in designated areas outside the structure.
l. No one shall use a cylinder's contents for purposes other than those intended by the supplier.
m. Always use the proper regulator for the gas in the cylinder. Always check the regulator before attaching it to a cylinder. If the connections do not fit together readily, the wrong regulator is being used.
n. Before attaching cylinders to a connection, be sure that the threads on the cylinder and the connection mate are of a type intended for the gas service.
o. Do not permit oil or grease to come in contact with cylinders or their valves.
p. Wipe the outlet with a clean, dry, lint-free cloth before attaching connections or regulators. The threads and mating surfaces of the regulator and hose connections should be cleaned before the regulator is attached.
q. Attach the regulator securely before opening the valve wide. Always use a cylinder wrench or another tightly fitting wrench to tighten the regulator nut and hose connections.

r. Open cylinder valves SLOWLY. Do not use a wrench to open or close a hand wheel type cylinder valve. If it cannot be operated by hand, the valve should be repaired.
s. Stand to the side of the regulator when opening the cylinder valve.
t. Do not attempt to repair cylinder valves or their relief devices while a cylinder contains gas pressure. Tag leaking cylinders or cylinders with stuck valves and move to a safe, secure outdoor location.

10.24 Fire Prevention and Protection

a. Open fires are prohibited without a permit from Denver Fire Department.
b. Subcontractors performing torch-applied roofing operations must submit NRCA (National Roofing Construction Manager Association)-recognized CERTA (Certified Roofing Torch Applicator) training documentation for each of their personnel involved in such operations prior to those personnel commencing work on the project.
c. Locations for storage of all fuels, lubricants, starting fluids, etc., shall be reviewed by Program Manager prior to use by Contractor for storage and shall conform to the requirements of the NFPA as well as the local Fire Marshal. Plastic containers are not permitted per OSHA specification.
d. Storage of fuels shall be away from ignition sources.
e. Only containers approved by Underwriters Laboratories, Factory Mutual or DOT, and clearly labeled to identify contents shall be used for transporting or storing flammable or combustible liquids. Metal safety cans with self-closing spouts and flash arresters are required for the storage, handling, and transporting of flammable and combustible liquids.
f. Where NFPA 505 or NEC classifies an area as Class I, II, or III, then Contractor will select the Type Designation for powered industrial trucks that can be safely used in the area.
g. When providing temporary heat, contractor must obtain a Temporary Heating Permit from DFD. Contractor shall follow all permit conditions, including but not limited to, 25 ft separation of combustibles, having a 2A-10BC rated fire extinguisher within 75ft, locating cylinders 6 ft away or 20ft when blowing heat towards them, and marking emergency shut-off valves. Firewatch must be on-site during operation and visually checking device every 30 minutes. A Fire Watch Permit may also be necessary. Contractor must follow IFC and NFPA 58.
h. Smoking is not permitted within building structures or work areas.
i. Flammable or combustible liquids or gases shall not be stored inside any building unless approved by the Program Manager in writing. When indoor storage is approved by the Program Manager in writing, such storage shall comply at a minimum with OSHA 1926.152 and NFPA requirements. Storage is defined as maintaining quantities in excess of what can be used in the course of normal work during the intended shift.
j. Vessels or tanks containing flammable or combustible liquids or gases shall be placed in a fuel storage area designated by the Contractor. This area will be located a minimum distance from buildings, construction equipment, parking lots, etc. to minimize the exposure to a fire involving the tank. The Contractor shall meet local, state, and federal safety requirements when placing vessels or tanks. Such locations will be equipped with substantial barricades or bollards to prevent vehicles and equipment from striking the vessels or tanks. This is also required of any fuel container that provides temporary heat for a structure.
k. Flammable or combustible liquids or gases shall not be stored on roofs when not in use including after work shifts.
l. Storage tanks shall be equipped with self-closing dispensing nozzles and shall be provided with atmospheric and emergency relief vents equipped with flame arresters.
m. Tanks or drums from which flammable liquids are dispensed shall be electrically grounded and shall be equipped with bonding wire to complete the grounding with the vessel into which the liquid is dispensed.

n. There shall be no smoking or open flame in flammable or combustible liquid or gas storage areas. Conspicuous and legible signs prohibiting smoking shall be posted by the Contractor.
o. The Contractor will provide portable, dry chemical fire extinguishers (minimum 20 pound ABC) for the fuel storage areas.
p. Portable fire extinguishers suitable for the potential hazard shall be provided by each Contractor for their equipment, office area, and work activities. A fire extinguisher must be in the immediate work area when any spark or open flame producing work is taking place. The Contractor shall be responsible for general area fire extinguisher placement and maintenance until the building is turned over to the Owner. In addition, the Contractor shall have on site personnel trained in the proper use of fire extinguishers.
q. Any work involving or producing spark, open flame, arc or heat requires a hot work permit**.**
r. The Contractor shall be responsible for ensuring the removal (protection when removal is not feasible) of all combustible or flammable materials in the area and shall provide appropriate fire extinguishers and fire watch as required by the work.
s. In order to summon firefighting assistance, call 303-342-4211. Immediately report all fires (even those that have been extinguished) to the DEN ROCIP Safety Team.
t. Replace or recharge temporary firefighting and fire protection equipment immediately after use. Report to the DEN Project Manager and DEN Safety any discharge or use of fire suppression equipment.
u. Where contractor discharges firefighting equipment and extinguishes a fire inside a building or structure, they will still alert Denver Fire Department to respond for a hot spot check to ensure the fire is completely extinguished. Firewatch will remain for at least 90 minutes following discharge or use of fire suppression equipment.
v. Fuel-burning types of lanterns, torches, flares, or other open flame devices are prohibited.

10.25 Powder Actuated Tools

Powder actuated tools are prohibited unless expressly allowed by contract or DEN grants a variance. Typically, variances will NOT be granted when security is an issue.

When permitted, Contractors/Subcontractors, of any tier, shall ensure that employees using powder actuated tools be certified by the manufacturer's representative prior to use. Certification cards must be available for immediate inspection if requested.

Contractors/Subcontractors using powder actuated tools shall ensure that all cartridges, whether used, not used, or misfired, have been picked up and removed from the work area. Powder actuated tools shall not be left unattended while loaded. If found unattended and loaded, the operator shall be subject to removal from the project. All cartridges must be accounted for whether used or unused.

The use of hardhat, safety glasses, full face shield and hearing protection shall be used while operating a powder actuated tool. Signs shall be posted in areas where powder actuated tools are in use.

10.26 Traffic Control

All work shall be planned well in advance to keep traffic obstructions, public inconvenience, and lost work time to a minimum.

Flaggers must be Colorado Certified in accordance with C.R.S. 43-5-308 and are required:
a. Where workers or equipment intermittently block a traffic lane
b. Where plans or permit allow the use of one lane for two directions of traffic (one person is required to direct vehicles for each direction of traffic)

c. Where DEN determines a need for the safety of airfield traffic, the public, and/or workers.
d. Where required by statute

Lighting plans must be provided for nightwork where there are flaggers, uniformed traffic control officers, or workers exposed to live traffic without physical concrete barriers or TMAs to separate them from live traffic.

10.27 Heat and Cold Illness Protection

To ensure that employees are properly protected during extreme weather, Contractors/Subcontractors are required to establish a Heat/Cold Illness Prevention Plan to educate and monitor employees for heat/cold-related illness. Refer to NIOSH and OSHA heat illness prevention websites. At a minimum, this plan is to contain the elements listed below:

a. Training
b. Water
c. Shade/Cooling/Warming Stations if necessary
d. Monitoring the Weather
e. Heat/Cold Procedures & Acclimatization (may include break frequency or job rotation)
f. Clothing
g. Worker monitoring
h. Emergency Response

10.28 Personal Protective Equipment

All contractors on site must perform a Personal Protective Equipment (PPE) hazard assessment, found in Appendix B.2, for all their tasks and associated exposures. Contractors may request in writing to use their own form, and DEN Safety may reject or accept the request. The PPE hazard assessment must comply with 29 CFR 1910.132(d), and the Contractor must document the assessment. All contractor personnel and visitors on the construction site must adhere to the following minimum PPE policies.

10.28.1 Eye Protection

a. ANSI Z87.1 safety glasses with side shields shall always be worn while in the work and material laydown areas.
b. When performing any work above shoulder height, employees must wear goggles or safety glasses with face shield. Carpenters and any other trades creating or stirring fine dusts while working shall always wear goggles or foam lined safety glasses.
c. Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment. It should be recognized that dusty and/or chemical environments may represent an additional hazard to contact lens wearers. Hazardous environments may include but are not limited to those in which a respirator may be required or where welding is being performed.
d. If the task requires an employee to wear goggles, basic eye protection should not be worn since a good seal cannot be obtained.
e. When Contractors' or Subcontractors' employees are exposed to flying particles, splashes, mists, etc., they must wear an approved face shield as well as basic eye protection.
f. When welding, a welding hood as well as both basic eye protection and a hard hat must be worn. This is to protect employees from hot slag when the hood is raised and from overhead work exposures.

10.28.2 Head Protection

a. All project work and material laydown areas are considered “hard hat areas”.
b. By January 1st, 2028, everyone working on site must at a minimum wear ANSI 2 Class G hard hats with a chin strap while on the project.
    i. A Type 2 hard hat minimizes the effect of side or lateral blows to the head as well as to the top of the head. The interior of a Type 2 hard hat is different from a Type 1 in that it includes a high-density material and a suspension that circles the wearer’s head to absorb a blow. The chin strap ensures that during a blow to the hat or in a fall that the hard hat remains in place.
c. A Type 1 hard hat protects a person’s head from overhead falling objects or impact threats from above may only be used by short term delivery personnel.
d. Electricians or other trades that work with high-voltage electrical systems over 2,200 volts are required to wear Class E hard hats.
e. Hard hats are not required in parking lots and office trailers that are separated from construction work zones.
f. Employee’s first, last name, Contractor/Subcontractor company names are to be displayed on the front of all employee hard hats that are issued to their employees.
g. Employees must also have an official ROCIP project-specific sticker on their hardhat, indicating that they have successfully completed safety orientation and pre-project drug testing. This is confirmed by the Contractor. The project-specific sticker will be issued by the Contractor by DEN Safety.

10.28.3 Hearing Protection

a. Contractors, Subcontractors, vendors, and visitors shall be required to wear hearing protection when working in or passing through high noise areas as defined in 29 CFR 1926 Subpart D. It shall be the responsibility of the Contractor or Subcontractor to provide the hearing protection for their staff and document that training is provided. In addition, employees shall be issued or made readily available hearing protection such as but not limited to disposable ear plugs with an NRR 30.
b. The Contractor’s safety representative or designee will monitor work areas to recognize and post where hearing protection is required.

10.28.4 Foot Protection

a. All workers must wear at least a 6” safety or steel-toe boot. Footwear must at a minimum conform to current ASTM F2413 standard.
b. Any work tasks requiring special footwear requires a PPE hazard assessment to be completed. This may include the need for additional protections such as: metatarsal impact protection (Mt), conductive properties (Cd), electrical hazard (EH), static dissipative (SD), puncture resistance (PR), or to meet another ASTM standard.
c. Metatarsal covers are required for operating jackhammers, earth compacting equipment (jumping jacks), and other similar activities.

10.28.5 Clothing and High-Visibility Garments

a. High visibility reflective vests, shirts or jackets shall be worn by all personnel working in all construction areas including material and lay down yards. The high-visibility reflective PPE must meet the requirements of the current ANSI/ISEA 107 standard for-

Performance Class 2 or 3. A Class 2 vest must have at least 775 inches of safety yellow or safety orange background material and 201 square inches of reflective striping.

b. Nightwork requires Performance Class 3 vests and pants for all roadwork or where vehicles or heavy equipment are present on site. Gaiters are allowed on airside projects at night where heavy equipment is not present.
c. Workers who are welding, cutting, or brazing are exempt from wearing a high visibility vest while performing the task, however once completed, and moving about the project, the high visibility vest shall be worn.
d. Clothing suitable for the weather and your work shall be worn. Torn or loose clothing, cuffs, jewelry, or neckwear that may be a hazard are not allowed. Shirts shall be worn and have sleeves measured at least four inches from the shoulder seam. Pants shall be worn. Shorts are not allowed.
e. Clothing shall be maintained in a clean, neat, and repaired fashion. Clothing and personal protective equipment shall not exhibit any form of inappropriate or profane drawing, photographs, or language (foreign or English) related to sex, race, national origin, gang related, or that reflects personal opinions.
f. All employees working with electrical energy must be protected by clothing covered by NEC 70 E.
g. Shoulder length or longer hair must be tied back and put under the hard hat or worn in a hair net.

10.28.6 Hand Protection

The Contractor is required to implement a 100% glove policy for the project. During the pre-project hazard analysis or JHA development, hand protection shall be selected based upon the hazard and performance characteristics of the glove and documented in the PPE Hazard Assessment and JHA.

Exceptions to the 100% glove policy are:

a. In cases where gloves may present a greater hazard, the Contractor shall submit in writing justification for working without this protection.
b. Anytime equipment or manufacturers manual states the use of gloves presents a greater hazard.
c. Moving machinery where gloves can become entangled or caught between.

10.28.7 Respiratory Protection

Respirators should be used for protection only when engineering controls have been shown to be infeasible for the control of the hazard or during the interim period when engineering controls are being installed. See Section 10.15.

10.29 Low Level Light/Night Work

For the purposes of planning for alternate shift work hours, Night Work is defined as falling between the hours listed for each month in the table below:

Night Work Hours Chart 2026 Note: This chart shows time adjusted for Daylight Savings Time (DST) 2026 and must be adjusted yearly for the months in which DST starts and ends. If DST is ended as is proposed by CO legislature, the times in this chart will be adjusted.		
Month	End daylight period	Start daylight period

Jan	4:30 pm	8:00 am
Feb	5:00 pm	7:30 am
March	5:30 pm	7:30 am
April	7:00 pm	7:00 am
May	7:30 pm	6:30 am
June	8:00 pm	6:00 am
July	8:00 pm	6:00 am
Aug	7:00 pm	7:00 am
Sept	6:30 pm	7:30 am
Oct	5:30 pm	8:00 am
Nov	4:00 pm	7:30 am
Dec	4:00 pm	8:00 am

10.30 Housekeeping, Access, and Material Handling

a. Materials shall be piled and stacked so that safe clearances are maintained, and toppling is prevented.
b. Spillage of fuel, oil or hazardous materials shall be reported to the 303-342-4211, the DEN Project Manager, and the DEN ROCIP Safety Team. Spills shall be cleaned up or contained immediately. The Contractor must have a Spill Cleanup Kit available on site. On-site disposal of oil or hazardous material is prohibited.
c. Trash and garbage shall be placed by the Contractors into appropriate containers. Debris is to be cleaned up daily. Projects will have a "clean-as-you-go" policy. The Contractor is responsible for monitoring this policy and pursuing any Subcontractor that is not in compliance.
d. Nails protruding from lumber shall be removed or bent over immediately. Metal banding must be disposed of immediately.
e. Steps or ramp must be provided where there is a change in elevation of more than 10 inches in a walking/working surface or access point.
f. Where employees must access work areas via a soil slope, that surface will not be greater than a 3 to 1 slope and must be stable. If the slope is greater than 3 to 1, then contractors will provide a safe access means, such as cutting in and supporting/maintaining steps, providing adjusta-stairs, or some other means for employees to safely traverse terrain to their work areas.
g. Equipment will be staged in areas that provide a safe walking surface for operators.
h. Chains may not be used for leading edge protection access.
i. Trash dumpsters may be located at the site. The disposal of trash into these dumpsters is the responsibility of each Contractor. Trash removal from upper floors/work levels will require the use of trash chutes or some other safe means of trash removal. No one is permitted to throw or drop trash/debris from upper floors/levels to the dumpster or ground below.
j. Cords or hoses must be hung overhead, out of designated walkways, whenever possible. Cords or hoses on the ground must be covered to minimize trip hazards and damage Cords not in use shall be unplugged, bundled, and safely stored to not pose a tripping hazard or to block access.
k. Unobstructed passageways for the movement of fire trucks, ambulances or similar emergency vehicles shall be maintained. A minimum of 15 feet (or as stipulated by the governing fire official) of clear, unobstructed access shall be maintained leading to fire hydrants and Siamese connections.
l. All loose and combustible material shall be removed from work areas at the end of the workday or as wind and weather conditions dictate.
m. Gang boxes and toolboxes shall not have materials stored on top of them.
n. Haul routes and access to the sites must also be maintained continuously and kept free of material and FOD accumulation.

o. Prior to operation, hoists must be inspected in accordance with manufacturer specifications. When using hoists the operator may not perform other work and must constantly tend the controls until the load has been safely landed. Initial and monthly inspections must be documented for all hoists on site.
p. Hoist manuals must be on site for reference. Lifts must stay within the load capacity and working angle of the hoist. Loads must be secured to prevent displacement or dropped objects. Materials may not be hoisted over personnel. Dropped object zones must be established around hoists.
q. Unload material in a way that does not require anyone to be on the unloading side after material tie-downs have been removed.

10.31 Illumination

Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lit to not less than the minimum illumination intensities listed while any work is in progress:

Foot-Candles	Area of Operation
5	General Construction Area Lighting
3	General Construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas
5	Indoors: warehouses, corridors, hallways, and exit ways
5	Tunnels, shafts, and general underground work areas Exception: minimum 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling with Bureau of Mines approved lights
10	General construction plant and shops (e.g. batch plants, screening plants, mechanical and electrical rooms, carpenter shops, rigging lofts and active storerooms, mess halls, and indoor toilets and workrooms.)
30	First aid stations, infirmaries, and offices.

10.32 Administrative Controls and Inspection Documentation

a. Signs and symbols required by OSHA or any other regulatory standard shall be visible at all times when work is being performed, and shall be removed or covered promptly when the hazards no longer exist.
b. Danger signs shall be used only where an immediate hazard exists and have red as the predominating color.
c. Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices and have yellow as the predominating color.
d. If a contractor sets up a controlled work zone or safety signage, in addition to any required regulatory required signage, they shall also provide additional signage with company name and responsible employee contact information, including name, title, and 24/7 phone number. Controlled work zones and signage must be removed promptly when hazard no longer exists.
e. Areas in which lasers and x-rays are used shall be posted with standard warning placards.
f. Where not otherwise stated in this Manual, any regulatorily or manufacturer required inspections of safety or personal protective equipment, tools, or other equipment must be documented and auditable.

10.33 General Conduct

Good conduct is essential to the common good of all employees and the speedy progress of the job. Undesirable conduct including, but not limited to the following, will not be tolerated and employees will be subject to removal from project:

a. Unauthorized possession of any project property or material
b. Possession of or use of intoxicants on premises, regardless of source
c. Engaging in disorderly conduct or horseplay
d. Engaging in distracting behavior, such as non-work related cell phone or ear bud use
e. Gambling, including sale of chances
f. Fighting on DEN premises
g. Failure to wear or use required safety equipment, observe safety rules and practices
h. Illegal possession or use of narcotics or non-prescribed tranquilizers or pep pills on premises, or attempting to bring them on the job site
i. Possession or use of firearms, weapons, or explosives is expressly prohibited on the project premises
j. Willful defacing or damaging of equipment, tools, material or other property of the project or Contractors.
k. Offensive and derogatory language is prohibited.

Contractor and Subcontractor employees are required to report unsafe behaviors and conditions to their supervisor. When possible, employees shall correct hazards immediately. Employees should look out for their fellow workers and advise them to work safely, assisting them if necessary. Employee suggestions for improved safety performance are encouraged.

10.34 Protection of the Public and Property

The Contractor and Subcontractors shall take the necessary precautions to protect the general public (individuals not contractually related to the project) from injury and prevent damage to property and shall follow the contract requirements. The precautions to be taken at a minimum are as follows:

a. Perform no work in any area occupied or in use by the public unless specifically permitted by the contract or in writing from DEN Project Manager. Site boundaries are to be clearly defined and contractor shall post signs stating public access is prohibited.
b. Maintain work areas in a safe condition where public use may be necessary, especially involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, and vehicular roadways. Protect the public with guardrails, barricades, temporary fences, overhead protection, temporary partitions, shields, and adequate visibility. Such protection shall guard against harmful radioactive rays or particles, flying materials, falling, or moving materials and equipment, hot or poisonous materials, explosives and explosive atmospheres, flammable or toxic liquids and gases, open flames, energized electric circuits, or other harmful exposures.
c. Keep sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, or exits that remain in use by the public clear of obstructions to permit safe ingress and egress of the public.
d. Cattleguard secured together, or other similar barriers as approved by DEN Safety must be erected around temporary curtain wall openings, or other leading-edge conditions, created for material movement or other contractor activities. The barrier must be set back a minimum of 15 feet from the opening and move out perpendicularly from the wall for at least 60 feet or until fully enclosed. Where the barrier cannot enclose the entire area, the contractor will provide personnel at each end of the opening and at least every 15 ft, whose sole task is to keep people away from the work area.
e. Where danger tape or other less physically restraining methods to separate work areas from the public are approved by DEN, and will only be used for short duration work, warning signs and instructional safety signs shall be posted.

f. At least one spotter shall help direct the movement of motorized equipment in public or congested areas.
g. Provide sidewalk sheds, canopies, catch platforms, and netting or fences when it is necessary to maintain public pedestrian traffic adjacent to the erection, or structural alternation of any interior or exterior structure.
h. Provide temporary fences around the perimeter of above ground operations adjacent to public areas except where a sidewalk, shed, or fence is provided by the contract or as required above. Perimeter fences shall be at least six (6) feet high. They may be constructed of wood or metal frame and sheathing, wire mesh or a combination of both. When the fence is adjacent to a sidewalk near a street intersection, at least the upper section of the fence shall be open wire mesh from a point not over four (4) feet above the sidewalk and extending at least twenty-five (25) feet in both directions from the corner of the fence or otherwise required by Denver International Airport.
i. Provide warning signs and lights, including electric lights during periods of severely restricted visibility, and continuously from dusk to sunrise along the guardrails, barricades, temporary sidewalks, and at every obstruction to the public as needed. They shall be placed at both ends of such protection or obstructions and not over twenty (20) feet apart.
j. Provide temporary sidewalks when a permanent sidewalk is obstructed by the operations. They shall be in accordance with the requirements of the local ordinances. Guardrails shall be provided on both sides of temporary sidewalks.
k. Provide guardrails on each side of vehicular and pedestrian bridges, ramps, runways, and platforms.
l. Pedestrian walkways elevated above adjoining surfaces, or walkways within six (6) feet of the top of excavated slopes or vertical banks shall be protected with guardrails, except where sidewalk sheds or fences are provided. Guardrails shall be made of rigid materials capable of withstanding a force of at least two hundred (200) pounds applied in any direction at any point in their structure. Their height shall be approximately forty-two (42 + or - 3) inches. Top rails and posts may be two inches by four inches (2 x 4) dressed wood or equal materials. Posts shall not be more than eight (8) feet apart.
m. Provide barricades where sidewalk sheds fences or guardrails as referenced above are not required between work areas and pedestrian walkways, roadways, or occupied buildings. Barricades shall be secured against accidental displacement and shall be maintained in place except where temporary removal is necessary to perform the work. When a barricade is temporarily removed, a watchman shall be placed at all openings.
n. Maintain all equipment, devices, and structures to not pose a hazard to the public, property or employees, and to perform their intended functions properly at all times.
o. Each point of access to the project will be controlled.
p. Perimeter noise reading levels will be monitored in areas where public or non-construction personnel are adjacent to the work zone. Peak levels may not exceed 115 dBA. If peak readings exceed 115 dBA or if TWA exceeds 85 dBA, work must be stopped and the cause must be evaluated to determine how noise exposures can be minimized through engineering controls, work methods, shift work, or other means.

10.35 Site Security

The Contractor shall be responsible for maintaining the security of their jobsite, vehicles, tools, stockpiled materials, waste, and hazardous materials. **DEN is not liable for any lost, stolen, or otherwise damaged vehicles, tools, stockpiled materials, or any other Contractor-owned materials, regardless of whether equipment and materials are covered by the ROCIP program insurance. The Contractor and its subcontractors are liable for all uncovered costs related to lost, stolen or otherwise damaged vehicles, tools, materials, or any other Contractor-owned items or materials.**

All vehicles will be subject to search upon entering and exiting the construction site and designated parking areas. Any unauthorized vehicle parked on the project site (other than in designated parking areas) may be physically removed at the expense of the vehicle owner. Loitering on the job site before or after assigned shift is prohibited.

Report unauthorized people, vehicles, suspicious behaviors, unattended packages, etc. to Denver International Airport Security at 303-342-4211.

All employees working on ROCIP projects that must get a DEN SIDA (Security Identification Display Area) badge must do so before going for their pre-employment drug test.

10.36 Smoking (includes Vaping)

The primary purpose of this policy is the establishment of a completely smoke-free environment in the workplace to protect life, health, and property. Employees and visitors are not permitted to smoke in any buildings on DEN property. Employees and visitors may smoke at designated smoking areas on site. At each construction job site, the Contractor will designate a smoking area. Smoking is not permitted in the immediate work area to include onsite vehicles and equipment. DEN reserves the right to designate specific smoking areas at its discretion**.**

The area will include but will not be limited to the following conditions:

a. Smoking will be permitted only at designated smoking areas, at least 100 feet from work areas.
b. Designated smoking areas must have a "Smoking" sign that indicates the designated smoking area. A cigarette butt container with sand must be available to extinguish smoking materials. Cigarette butts will not be permitted to be discarded on the ground, roadway, or work area.
c. A charged, 20# ABC fire extinguisher must be available at the designated smoking area. The fire extinguisher must be within 25 feet traveling distance in any direction of the designated smoking area.
d. Contractor and Subcontractor employees must be trained in the proper use of fire extinguishers.
e. No smoking is permitted within 100 feet of flammable liquids, approved flammable liquid containers, and flammable materials.
f. No smoking is permitted within 100 feet of storage and/or in use flammable compressed gas cylinders, or gas cylinders that support combustion.
g. No smoking is permitted within 100 feet of combustible materials or gas pump areas.

10.37 Sanitation

10.37.1 Potable water

The Contractor must adequately supply potable water on the project site. Portable containers used to dispense drinking water shall be capable of being tightly closed and equipped with a tap. Water shall not be dipped from containers. Any container used to distribute drinking water shall be maintained in a sanitary condition, shall be clearly marked as to the nature of its contents, and not used for any other purpose. A common drinking cup is prohibited.

10.37.2 Toilets

Toilet facilities shall be maintained in a sanitary condition. At a minimum, toilets shall be provided for employees according to the 29CFR1926.51(c)(2) table:

Number of Employees	**Number of Facilities**
20 or less	1
20 or more	1 toilet seat and 1 urinal per 40 workers
200 or more	1 toilet seat and 1 urinal per 50 workers

10.37.3 Washing and Changing Facilities

The Contractor shall provide adequate washing facilities for employees engaged in the application of paints, coating, herbicides, or insecticides, or in other operations where contaminants may be harmful to the employees, such as silica or grease. Such facilities shall be in near proximity to the worksite and break areas and shall be so equipped as to enable employees to remove such substances.

a. Hand soap or similar cleansing agents shall be provided.
b. Individual hand towels of cloth or paper, warm air blowers or clean sections of continuous cloth toweling, convenient to wash facilities, shall be provided.
c. Washing facilities shall be maintained in a sanitary condition.

Whenever employees are required by a particular standard to wear protective clothing because of the possibility of contamination with toxic materials, change rooms equipped with storage facilities for street clothes and separate storage facilities for the protective clothing shall be provided per 29 CFR 1926.51(i).

10.37.4 Break Areas

Break areas shall be provided for workers for meals and prescribed breaks. These areas will be separated from work areas so that workers are not exposed to any jobsite hazards, such as, but not limited to flying or falling objects, chemicals, dusts, silica, or other contaminants. Workers will be provided with washing facilities as described in Section 10.31.3 so that they can wash their hands, arms, and/or face prior to ingesting food.

A

Appendix A- Site-Specific Safety Plan Requirements

Appendix A.1- Site Specific Safety Plan Detailed Requirements
Appendix A.2- OSHA Regulations Requiring Competent, Authorized, or Qualified
Appendix A.3- Project Level Exposure Assessment

Fillable PDF ROCIP 5 Safety Manual Appendix Forms can be found at: Denver International Airport - ROCIP 5 Safety Manual Appendix Forms

Every Contractor and Subcontractor, and their Subcontractors, must develop and implement a written site-specific safety plan (SSSP) and a copy must be maintained at each work site.

The purpose of the SSSP is to supplement the employers' corporate policies and procedures. Contractors and Subcontractors are solely responsible for the content of their own SSSPs. This program outline was written for a broad spectrum of employers and it should be modified as appropriate to provide the essential framework required for a SSSP on a Project.

Please refer to Section 6 for SSSP and safety planning requirements. Each section below must be submitted in the order presented. Understanding that some projects may have unique scopes with additional pre-planning requirements, those should be included at the end of the outlined sections included in this Appendix. If a section does not apply, mark N/A, but do not remove the heading.

To adequately complete the SSSP requires the Project Manager/Superintendent and the Contractor Safety Representative to carefully review the requirements for each of the required elements, as well as OSHA written program requirements which should be included in corporate safety manuals/procedures, and which may be reviewed by DEN.

The detailed requirements for each section of the SSSP can be found in this Appendix A.1. This program must be maintained by the Contractor's/Subcontractor's Project Manager and Safety Representatives.

1. Contractor's Commitment to Safety

Safety Value/Mission Statements or Commitment Pledge- Project Team & Owner Specific

2. Accountability & Responsibility of Key Project Personnel by position and name

Provide site safety roles and responsibilities, and 24/7 contact information of people in the following positions:

a. Project Manager
b. Contractor Safety Representative (as accepted by DEN)
c. Additional on-site Safety personnel (where applicable)
d. Construction Manager
e. Superintendent(s) Self-Perform Work
f. Superintendent(s) Subcontracted Work
g. Field Supervisors or Forepersons
h. ROCIP Insurance Portal and Payroll Reporting Administrator
i. Claims Administrator – Worker's Compensation
j. Claims Administrator – All other claims
k. Other

3. Accountability & Responsibility of Key Corporate/District Leadership

Provide site safety roles and responsibilities and business hour contact information of persons in the following positions:

a. CEO/COO/President/Owner/Manager
b. Corporate/District Safety Officer
c. Other

4. Identification of Competent & Qualified Persons (see Appendix A.2)

Include a matrix of all competent/qualified people responsible for any scopes of work where OSHA requires one to be assigned. If necessary, utilize Excel to create and maintain the matrix. See Appendix A.2 for a reference list of applicable OSHA standards and for a full list of OSHA standards requiring competent persons visit the following link: https://www.osha.gov/competent-person/standards

Using the following key, indicate if the employee is one, or more than one, of the following as defined by OSHA (https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.32):

- C – Competent
- Q – Qualified
- A – Authorized or Designated

Sample matrix:

Employer	Employee Name	Phone (for supervisors)	General Safety	Hearing Protection	Rigging	Electrical	*Etc.*	*Etc.*	Training /Experience /Credentials
GC name	Jane Doe	333-333-3333	C	C	Q				Crosby Rigger Training and field verified; employer provided training for hearing protection
Sub name	John Doe					Q, A			Licensed Journeyman
Sub name	Josh Doe	333-333-3333				C, A			

5. Project Level Exposure Assessment (see Appendix A.3)

Complete the Appendix A.3 checklist. Provide brief narrative of project. List all major scopes of work and phasing. List major subcontractors for each scope or indicate where self-performing work.

6. Contractor Daily Safety Inspections

Include a copy of the site-specific safety audit form that the Contractor Safety Representative will conduct daily. Indicate how results will be tracked and the information utilized to inform the site-specific safety program.

Results are required to be communicated with the DEN project team during weekly Owner progress construction meetings. See Section 8.2.

7. Contractor Oversight and Safety Management of Subcontractors

Detail the project team's approach to managing safety on the project specific to subcontractor management and oversight, including how Contractor will assure all employees have received appropriate and regulatory safety training and that employees possess sufficient knowledge to perform their work safely.

8. Night Work/Alternate Shift Plan (if applicable)

Detail plan for staffing and oversight of alternate shifts, including general contractor personnel and safety representative. Include planned durations and/or indicate if alternate schedules will be required continuously.

9. Fatigue Management Plan

Please outline all the predicted causes for and the controls and strategies that will be used for dealing with fatigue to keep all employees on site safe. Refer to Section 9.6 for work set and rest period requirements.

10. Safety Accountability and Employee Engagement Program (Reward/Discipline)

Detail site-specific programs that will be used by the General Contractor to promote and uphold safety on this DEN project and how the safety performance of the personnel listed in Section 2 of this plan will be measured.

11. Training and Instruction List

Include a list of all training and instruction needed to perform the work safely and in accordance with regulatory requirements. Indicate if training will be provided by Contractor Safety Representative or outside entity. Indicate how training/instruction/knowledge of all personnel, including subcontractor personnel, will be verified by the General Contractor.

12. Emergency Action Plan and HAZWOPER Plan

a. Emergency Action Plan and Crisis Management Plan

Contractor Emergency Action Plan and HAZWOPER (where required) must comport to OSHA 1926.35 and/or 1926.65. Refer to Section 6.1.1.1 for DEN Communication Requirements and provide an internal communication and responsibility plan for the site.

Contractors must provide a plan for emergency response which at a minimum must detail how site locations will be conveyed to emergency responders to ensure the least amount of delay in response time. Evacuation procedures and maps for employees must be developed and provided.

b. Severe Weather Preparation and Recovery Plan (if applicable)

Severe weather encompasses any weather-related event—tornado, severe thunderstorm, hurricane, flood, winter storm, temperature extremes—that poses a risk to life and property or impacts airport operations. The Contractor shall develop a plan that focus on ensuring employee safety and minimizing equipment/property damage. The plan shall include:

- Warning resources – how possible threats will be identified
- Roles of responsible parties
- Communications procedures
- Preparedness/mitigation activities to protect work, materials, and employees
- Response actions after an event to mitigate property losses
- Safety and logistical considerations

The Contractor will establish procedures in the event of snow, sleet, freezing rain, and/or ice accumulation to provide safe access to the site, parking areas, walking surfaces and haul roads. The plan will include priorities for snow and ice removal of the site, all sidewalks, parking lots, roadways, and designated parking areas on the project and identify responsible parties.

13. Site Planning – Work Zones, Material Laydown (on/off-site), & Hazardous Material Storage

General zones will be indicated on a site plan, to include work areas, material storage/laydown areas, break and hygiene areas, parking areas, and traffic/pedestrian areas. Where considerations need to be made for deliveries or large equipment set up, such as cranes, that should also be indicated on the plan or phasing discussed. (A full internal traffic control plan is required for civil construction work. See Section 6.3.)

As practicable, all material laydown areas for the project must be identified within the project limits, on DEN property, and any known off-site locations. Flammable storage locations and protections shall be indicated. For material stored on DEN property requiring spill protection, the contractor will indicate quantities and protection devices, as well as clean-up and disposal measures in the event of a spill.
If the project has access constraints, explain how materials will be received, unloaded, stored, moved, and/or disposed of.

14. Haul Route Maps

Initial haul route maps (those provided to drivers) must be included with first submittal of SSSP. These maps must be submitted as they are updated throughout the duration of the project.

15. Project Safety Forms

If the general contractor will not be utilizing the forms from the Appendix where it is optional, please include the forms the project will be utilizing. Include any safety forms, daily checklists, internal permits, training verification or onboarding forms, etc. that may be used to manage safety on this project as required by the Contractor, regulation, or this Manual.

16. List of Contractor Safety Standards that Exceed OSHA or the Contract Documents

Please list all safety standards that you have for this project that exceed OSHA, the Contract Documents, or this Manual. Provide a brief (1 to 2 sentence) description of how the standard or program exceeds these requirements and reference the document section/number for full program details (e.g., Contractor Safety Policy- Section 6, Fall Protection).

Section 17-19 are to be individual submittals, separate from the SSSP and each other.

17. Subcontractor Onboarding & Job Hazard Analyses (JHAs)

Please describe your procedures for conducting risk assessments and processes for developing JHAs, including individual employees' contributions and responsibilities.
All JHA's for the project must be reviewed by the Contractor Safety Representative. The Contractor shall provide guidance or mentorship to subcontractors as necessary to fully develop JHAs and elevate project safety performance. Once JHAs are detailed and adequately address the hazards, they will be submitted to DEN for review as outlined in Section 6.2.3.

18. New Employee Orientation (submit copy of training materials)

Submit any PowerPoint or handouts (other than ROCIP Acknowledgment form) that will be used during New Employee Orientation. Provide duration of orientation and names/positions of personnel providing training. Prior to submission, ensure your training meets requirements in Section and Appendix F.

19. Corporate Safety Manual

General Contractors must submit their corporate safety manuals with written programs that are in compliance with OSHA or other applicable requirements, including this manual's provisions, and at a minimum contain sections addressing the following hazards where applicable and any additional written plans as required by OSHA:

a. Hazard Communication Program
b. Trenching and Shoring Plan
c. Written 100% Fall Protection Plan
d. Respiratory Protection Program
e. Hot Work Permit Procedure
f. Silica Exposure Control Program
g. Confined Space Entry Procedure
h. Lockout/Tagout Procedure
i. Hearing Conservation Program
j. Assured Equipment Grounding Program
k. Powered Industrial Truck Program
l. Substance Abuse Program
m. Heat/Cold Illness Prevention Plan

This table is for reference only and may not reflect current standards. Please refer to the full OSHA regulations to review standards that require Competent, Authorized, or Qualified Individuals. This list does not include where standards contain hazard specific training requirements.

OSHA Standard	Competent	Authorized	Qualified
General safety and health provisions 1926.20	✓		✓
Ionizing radiation 1926.53	✓		
Gases, vapors, fumes, dusts, and mists 1926.55	✓		✓
Ventilation-Approved Respirator 1926.57	✓		✓
Methylenedianiline-Area Access 1926.60		✓	
Lead- Inspection 1926.62	✓		
Hazardous waste operations and emergency response 1926.65			✓
Hearing protection 1926.101	✓		
Fire protection 1926.150		✓	
Flammable liquids 1926.152			✓
Rigging equipment for material handling 1926.251	✓		
Gas welding and cutting 1926.350		✓	
Welding, cutting, and heating in way of preservative coatings 1926.354	✓		
Electrical- General requirements 1926.403			✓
Electrical- Wiring design and protection 1926.404	✓		✓
Electrical-Wiring methods, components, and equipment for general use 1926.405		✓	✓
Electrical-Special systems 1926.408		✓	✓
Scaffolds- General requirements 1926.451	✓		✓
Scaffolds- Additional requirements applicable to specific types of scaffolds 1926.452			✓
Scaffolds- Aerial lifts 1926.453		✓	
Scaffolds- Training requirements 1926.454	✓		✓
Fall protection systems criteria and practices 1926.502	✓		✓
Fall Protection-Training requirements 1926.503	✓		✓
Material hoists, personnel hoists, and elevators 1926.552	✓		✓
Motor Vehicles, Mechanized Equipment, and Marine Operations-Material handling equipment 1926.602		✓	
Specific Excavation Requirements 1926.651	✓		✓
Excavations- Requirements for protective systems 1926.652	✓		
Concrete and Masonry Construction- General requirements 1926.701			✓
Excavations- Requirements for cast-in-place Concrete 1926.703			✓
Concrete and Masonry Construction- Requirements for lift-slab operations 1926.705	✓		
Steel Erection- Site layout, site-specific erection plan and construction sequence 1926.752			✓
Steel Erection- Hoisting and rigging 1926.753	✓		✓

OSHA Standard	Competent	Authorized	Qualified
Steel Erection- Structural steel assembly 1926.754	✓		
Steel Erection- Column anchorage 1926.755	✓		
Steel Erection- Beams and columns 1926.756	✓		
Steel Erection- Open web steel joists 1926.757			✓
Steel Erection- Systems-engineered metal buildings 1926.758			✓
Steel Erection- Fall protection 1926.760		✓	
Steel Erection- Training 1926.761			✓
Underground Construction 1926.800	✓	✓	✓
Compressed air 1926.803	✓		✓
Demolition- Preparatory operations 1926.850	✓		
Demolition- Chutes 1926.852	✓		
Mechanical demolition 1926.859	✓		
Blasting and Use of Explosives- General provisions 1926.900	✓	✓	✓
Blaster qualifications 1926.901	✓		✓
Blastings and Use of Explosives- Misfires 1926.911		✓	
Electric Power Transmission and Distribution- Personal protective equipment 1926.954			✓
Electric Power Transmission and Distribution- Materials handling and storage 1926.958			✓
Electric Power Transmission and Distribution- Mechanical equipment 1926.959			✓
Working on or near exposed energized parts 1926.960			✓
Electric Power Transmission and Distribution- Testing and test facilities 1926.963			✓
Underground electrical installations 1926.965			✓
Electric Power Transmission and Distribution- Substations 1926.966			✓
Ladders 1926.1053	✓		
Stairways and Ladders- Training requirements 1926.1060	✓		
Asbestos 1926.1101	✓	✓	✓
Beryllium 1926.1124	✓		
Cadmium 1926.1127	✓	✓	
Respirable crystalline silica 1926.1153	✓		
Confined Spaces- General requirements 1926.1203	✓	✓	
Permit-required confined space program 1926.1204		✓	
Confined Spaces in Construction- Rescue and emergency services 1926.1211		✓	
Cranes and Derricks in Construction- Assembly/Disassembly- general requirements (applies to all assembly and disassembly operations) 1926.1404	✓		✓
Cranes and Derricks in Construction- Assembly/Disassembly-- employer procedures--general requirements 1926.1406			✓
Cranes and Derricks in Construction- Power line safety (up to 350 kV)--equipment operations 1926.1408			✓

OSHA Standard	Competent	Authorized	Qualified
Cranes and Derricks in Construction- Power line safety (over 350 kV) 1926.1409			✓
Cranes and Derricks in Construction- Power line safety (all voltages)--equipment operations closer than the Table A zone 1926.1410			✓
Cranes and Derricks- Inspections 1926.1412	✓		✓
Cranes and Derricks in Construction- Wire rope--inspection 1926.1413	✓		✓
Cranes and Derricks in Construction- Wire rope--selection and installation criteria 1926.1414			✓
Cranes and Derricks- Operation 1926.1417	✓	✓	✓
Cranes and Derricks in Construction- Fall protection 1926.1423	✓		✓
Cranes and Derricks in Construction- Work area control 1926.1424		✓	
Cranes and Derricks in Construction- Keeping clear of the load 1926.1425			✓
Cranes and Derricks in Construction- Qualifications of maintenance & repair employees 1926.1429			✓
Cranes and Derricks in Construction- Training 1926.1430	✓	✓	✓
Cranes and Derricks in Construction- Hoisting personnel 1926.1431	✓		✓
Multiple-crane/derrick lifts--supplemental requirements 1926.1432	✓		✓
Cranes and Derricks in Construction- Design, construction and testing 1926.1433			✓
Cranes and Derricks in Construction- Equipment modifications 1926.1434			✓
Tower cranes 1926.1435	✓		✓
Derricks 1926.1436	✓		✓
Floating cranes/derricks and land cranes/derricks on barges 1926.1437	✓		✓
Cranes and Derricks in Construction- Equipment with a rated hoisting/lifting capacity of 2,000 pounds or less 1926.1441			✓
Arc Welding and Cutting 1910.254			✓
Bloodborne Pathogens 1910.103		✓	
Control of Hazardous Energy (LOTO) 1910.147		✓	
Electric Power Generation, Transmission, and Distribution 1910.269	✓	✓	✓
Elevating Work Platforms & Aerial Devices 1910.66	✓		
Hazardous Waste Operations & Emergency Response 1910.120	✓		✓
Medical & Exposure Records-Access 1910.1020		✓	
Occupational Exposure to Hazardous Chemicals in Laboratories 1910.1450			✓
Occupational Noise Exposure and Hearing (Noise) Protection Conservation 1910.95	✓		
Openings/Holes-Floors & Roofs 1910.30			✓
Overhead and Gantry Cranes 1910.179			✓
Oxygen-Fuel Gas Welding and Cutting 1910.253	✓	✓	
Permit Required Confined Spaces 1910.146		✓	

OSHA Standard	Competent	Authorized	Qualified
Portable Fire Extinguishers 1910.157		✓	
Mechanical Power Presses 1910.217	✓	✓	
Powered Industrial Trucks 1910.178	✓	✓	
Powered Platforms for Building Maintenance 1910.66	✓		
Process Safety Management of Highly Hazardous Chemicals 1910.119			✓
Resistance Welding 1910.255	✓	✓	✓
Respiratory Protection 1910.134		✓	✓
Telecommunications 1910.268	✓	✓	✓
Air contaminants 1910.1000	✓		✓
Respirable crystalline silica 1910.1053		✓	
Manlifts Inspection and Operation 1910.68	✓	✓	
Hazardous Materials – Hydrogen 1910.103		✓	✓
Hazardous Material – Oxygen 1910.104		✓	
Hazardous Material - Flammable Liquids 1910.106			✓
Hazardous Material - Explosive and Blasting Agents 1910.109	✓	✓	✓
Hazardous Material - Storage and Handling of Liquefied Petroleum Gases 1910.110	✓		✓
Personal Fall Protection Systems 1910.140	✓		✓
Crawler Locomotive and Truck Cranes 1910.180		✓	✓
Derrick Use 1910.181			✓
Helicopter Inspection 1910.183	✓		
Slings Inspection and Operation 1910.184	✓		✓
Pulp, paper, and paperboard mills- Crane Signage and Operation 1910.261		✓	
Saw Mills Storage and Operation 1910.265			✓
Authority for 1910 Subpart S General 1910.303		✓	✓
Electrical Wiring Design and Protection 1910.304	✓	✓	✓
Electrical Wiring methods, components, and equipment for general use 1910.305		✓	✓
Electrical Equipment and Installations 1910.306			✓
Electrical Hazardous Locations Documentation 1910.307		✓	✓
Electrical Systems Access 1910.308		✓	✓
Electrical Training 1910.332			✓
Electrical Selection and Use 1910.333		✓	✓
Electrical Equipment Testing 1910.334			✓

GENERAL INFORMATION

Project: _____ General Contractor: _____

Person Completing this Form: _____ Title/Employer: _____

Construction Value ($): _____

Date of anticipated Work Start: _____

For DEN Construction Safety Use: _____ / _____

Narrative of Work Scope – include specific locations:

KEY CONTRACTOR LIST – Please list Subcontractors expected to oversee major scopes of work

Subcontractor	Scope of Work

Make ONLY ONE selection under each category highlighted in purple, except where indicated.
Where more than one option applies or *MAY* apply, select the option with the highest number.

CONSTRUCTION TYPE

Concrete or Asphalt Paving		
☐	0	N/A
☐	1	Hand pours or minor equipment involvement
☐	2	New Construction
☐	3	Tear-out and replace
Bridge Construction		
☐	0	N/A
☐	2	Repair
☐	3	New Construction or Expansion
Structural Steel Erection		
☐	0	N/A
☐	1	Single story, less than 15 feet in height, including external modification to existing structures
☐	2	Multi story or between 15 to 30 feet in height, including external modifications to existing structures
☐	3	Over 30 feet in height, including external modifications to existing structures **OR** work has public exposure ~100ft
Precast Concrete Structure		
☐	0	No
☐	3	Yes
General Vertical Construction and/or Demolition		
☐	0	N/A
☐	1	One-story, construction OR Work or demolition on interior non-structural components
☐	2	Two-story construction OR Work or demolition on critical support components of structure
☐	3	Over three-story construction OR Full demolition of structure
Vertical Masonry Construction		
☐	0	N/A
☐	1	Work at up to 4 feet above grade
☐	2	Masonry wall construction over 4 feet
☐	3	Concrete vertical formwork over 6 ft **OR** Liftslab or Tilt-wall construction
Natural Gas Supply Lines and Equipment		
☐	0	N/A
☐	1	Inspection, new construction, depressurized pipe
☐	3	All other work on fuel supply lines and equipment **OR** CNG Fueling Stations
Jet Fuel Supply Lines and Equipment		
☐	0	N/A
☐	1	Inspection, new construction, depressurized pipe
☐	3	All other work on fuel supply lines and equipment
Electrical – select one under each subcategory		**Please confer with your Electrical contractor.**
General		
☐	0	N/A

☐	1	Exposed energized equipment under 50 volts **OR** Use of energized equipment 50 volts or higher that is guarded by approved cabinets, enclosures, or insulation **OR** De-energized equipment w/ proper LOTO and grounding verified by a qualified person
☐	2	Potential shock hazard from working near or with exposed energized equipment 50 volts or higher with limited arc-flash hazard based on assessments
☐	3	Shock and arc-flash hazards from working near or on exposed equipment with voltages higher than 277v **OR** 120/208/230/240v systems with high available fault current **OR** No ARC flash study exists **OR** Work on panel switch gear, energized buses, transformers, or distribution equipment
Solar		
☐	0	No
☐	3	Yes
Trenching / Excavation / Underground Utilities		
☐	0	N/A or depth less than 2 feet
☐	1	Depth 2-4 feet
☐	2	Depth 4-20 feet
☐	3	Depth greater than 20 feet
Underground Construction		
☐	0	No
☐	3	Yes (tunnel and/or shaft entry required)
Caissons and Cofferdams		
☐	0	No
☐	3	Yes
Directional Boring		
☐	0	N/A
☐	1	No existing underground utilities identified within bore path during design
☐	2	Potential to hit buried sewer or non-FAA telecommunication line(s)
☐	3	Potential to hit buried gas, electric, or FAA lines

GENERAL CONSTRUCTION CONDITIONS & ACTIVITIES

Work at Height/Fall Hazard Potential		
☐	0	N/A
☐	1	4 to 12 feet
☐	2	12-20 feet fall
☐	3	Over 20 feet
Stairs and Ladders		
☐	0	N/A
☐	1	Enclosed stairways or ladder 10 feet or less, all Adjusta-Stairs style
☐	2	Open stairways over 10 feet. Ladder over 10 feet but less than 24 feet
☐	3	Fixed or portable ladders over 20 feet
Scaffolding (Excludes Baker style/narrow frame)		
☐	0	N/A
☐	1	Less than 20 feet, light duty 25 lbs/ft^2
☐	2	Over 20 feet, medium duty 50 lbs/ft^2 **OR** built as a gantry style structure for manual chain fall lifting 1500 lb. loads or less
☐	3	Over 75 feet, Heavy Duty 75 lbs/ft^2 **OR** May be subjected to high winds **OR** built as gantry style structure for electric hoist lifting, and loads over 1500 lbs **OR** built in and around other high-risk hazards **OR** fall protection will be required on scaffold

Mobile Scaffold, Narrow Frame or Baker Style		
☐	0	N/A
☐	1	Less than 6 feet
☐	2	Height is 6-12 feet **OR** is equipped with motorized power
☐	3	Over 12 feet
Public Exposure - Facility		
☐	0	N/A
☐	1	Soft barricade enclosure with small material movement, including hand carts
☐	2	Soft barricade enclosure w/ use of small equipment (e.g. MEWPs) **OR** moving materials requiring at 2-3 people
☐	3	Use of concourse level doors to move materials **OR** moving large equipment or materials with 4+ people
Welding, Cutting, Brazing – Hot Work		
☐	0	N/A
☐	1	Non-fuel handling areas, no combustible or flammable materials within 35 feet of hot work
☐	2	Fuel and combustible materials areas (Jet fuels, gas, weeds and grasses, etc.) that can be cleaned to 35 feet away from hot work **OR** Hot work within buildings
☐	3	Hot work in fuel handling areas (Jet fuels, gas, weeds and grasses, etc.) that cannot be cleaned
Flammable and Combustible Liquids		
☐	0	N/A
☐	1	Less than 5 gallons in one area
☐	2	More than 5 gallons and less than 60 gallons
☐	3	Over 60 gallons **OR** flash point of 100° F or less **OR** Jet fuel work
CAD (Exothermic) or Explosive Welding		
☐	0	No
☐	3	Yes
Manual Lifting		
☐	1	Less than 25 lbs
☐	2	25-50 lbs
☐	3	Over 50 lbs
Robotic, Automated, & Autonomous Equipment		
☐	0	N/A
☐	1	Use of a robot mounted camera or other equipment which is controlled by tether or umbilical cord and handheld control box so that control is always connected **OR** Equipment operates at a long distance from workers or the public, for example, to inspect drain systems, or to clean them out, and those used in confined spaces
☐	2	Automated or robotically positioned equipment for processes like cleaning, spray, painting, ceiling, etc. including equipment that is not attached and controlled by tether or umbilical but instead uses some form of radio communication
☐	3	All equipment which will be operated in proximity to people, no matter how it is controlled **OR** other equipment that moves on its own and is truly autonomous **OR** flying drones
Powder Actuated Tools (before use, must be requested and accepted by DEN)		
☐	0	No
☐	3	Yes
Hand and Power Tools		
☐	1	Hand tools only
☐	2	Hand-held power tools
☐	3	Shop power tools

Traffic Control / Haul Routes - (select up to one in each subcategory where applicable)		
☐	0	N/A
Roadways - Landside		
☐	1	Shoulder work with no lane closures **OR** Two-lane two-way road posted speed limit 30 mph or less
☐	2	Two-lane two-way road speed limit 30 mph to 45 mph with single lane closure
☐	3	Two-lane two-way road speed limit 45 mph and up with multiple lane closures **OR** One lane roadway **OR** Night work
Parking Lot/Public areas		
☐	1	Vacant/No public vehicle access and pedestrian crossing
☐	2	Divided Lot with physical barrier and potential public access
☐	3	Divided lot with no physical barrier (interaction with public vehicles) **OR** Any pedestrian access
Facility		
☐	1	Requires work in basement areas not considered travel lanes (near carousels, storage areas, etc.)
☐	3	Requires work in or next to travel lanes of Baggage Service Tunnel or Breezeways
Airside		
☐	2	VSR or Ramp work zones
☐	3	Runway, Taxiway, or LAR work zones
Confined Spaces and Enclosed Spaces		
☐	0	N/A
☐	1	Non permit required Confined Space (must be requested and accepted by DEN Safety) **OR** Enclosed space
☐	2	Permit required CS with no atmospheric hazards
☐	3	Permit required confined space with atmospheric hazards
Equipment Configuration for LOTO		
☐	0	N/A
☐	1	Lockable single point of isolation with no potential for stored/residual energy or for energy re-accumulation after shutdown
☐	2	Multiple isolation points under an energy control LOTO procedure **OR** group LOTO that extends more than one shift
☐	3	Multiple isolation points under an energy control LOTO procedure **OR** Group LOTO that extends more than one shift, AND WHERE equipment testing or local control is required or anticipated
Areas Needing Housekeeping and Sanitation		
☐	0	Non-fuel handling or non-flammable/combustible storage area, no hot work
☐	1	Fuel handling or flammable/combustible storage area, no hot work
☐	3	Fuel handling or flammable/combustible storage area, active hot work
Waste Disposal		
☐	0	General construction debris, trash, paper, cardboard, etc.
☐	2	Oily rags, food waste, or another possible combustible hazard
☐	3	Asbestos or other regulated waste
Weather and Environmental Conditions		
☐	0	Indoor work, no hazardous conditions expected
☐	1	Outdoor work with possible rain or light snow
☐	2	Contractor may need to or will work outdoors in winds over 25 MPH **OR** severe weather/lightning/snow
☐	3	Walking, working on, or driving over ice
Working On or Near Drowning Hazard		
☐	0	N/A

☐	1	Within 4 feet of edge of water or top edge of glycol ponds **OR** above water that is less than 10 feet deep **AND** work is behind guardrails or inside operating cab/stations or using fall restraint
☐	2	Within 4 feet of edge of water or top edge of glycol ponds **OR** above calm water **AND** work is NOT behind guardrails or inside operating cab/stations or using fall restraint
☐	3	Work is on the cooling towers or other vessel **OR** Sump pit w/ excessive water accumulation **OR** requires diving

HEAVY EQUIPMENT

Heavy Equipment		
☐	0	N/A
☐	1	Day time work with 1-2 operators in a single work area
☐	2	Day time work with 3-4 operators in a single work area
☐	3	Day time work with 5 or more operators **OR** HE Operations at night **OR** Pedestrian workers in proximity to HE or haul rts.
Cranes and Hoisting Equipment (excludes scaffold-built structures)		
☐	0	N/A
☐	1	Less than 1-ton lift or hoist
☐	2	More than 1 ton and Lift less than 50 tons
☐	3	Lifts over 50 tons or over 80% capacity **OR** Lifts over operable utilities/equipment **OR** Transferring load
☐	4	Lifting personnel **OR** Helicopter lift **OR** multiple crane lift
Aerial Devices, Manlifts/Extending Booms (MEWP Group B)		
☐	0	N/A
☐	1	Outriggers NOT required during use
☐	2	Work heights at 20 feet and higher **OR** Outriggers required during use
☐	3	Work at heights over 35 feet **OR** Over 80% of capacity rating chart
Scissor Lifts, Vertical Mast Personnel Lifts (MEWP Group A)		
☐	0	N/A
☐	1	Used at less than 15 feet
☐	2	Used at 15 feet or higher
☐	3	Used at 15 feet or higher **AND** workers will transfer outside of the lift
Derricks, Hoists, Elevators		
☐	0	N/A
☐	1	Less than 80 % of rated capacity, and hoisting less than 4800 pounds
☐	2	Derrick with rated capacity over 6000 lbs
☐	3	All Personnel Hoists OR Material Hoist or Derrick over 80% of rated capacity
Forklifts		
☐	0	N/A
☐	1	Battery powered, inside on smooth surface, no special attachments
☐	2	Propane, Gas, Diesel or Rough Terrain forklift, or with special lifting attachments
☐	3	Over 80% of capacity rating chart
Scrapers		
☐	0	N/A
☐	1	Contained to worksite, no pedestrian workers
☐	2	Contained to worksite, no pedestrian workers, and other equipment/trucks in work area
☐	3	Will cross roadways or other work zones **OR** pedestrian workers in vicinity

INDUSTRIAL HYGIENE AND HEALTH

Respiratory Hazards		
☐	0	Work does not need a respirator
☐	1	Work requires a half-mask respirator/dust mask
☐	2	Work requires a full-face respirator
☐	3	Work requires supplied air or a self-contained breathing apparatus (SCBA) **OR** environment may be or may become IDLH
Silica		
☐	0	N/A
☐	1	Infrequent, short duration tasks incidental to primary work (e.g. drilling a few holes in concrete or setting hangers with powder actuated hammers) where dust generation is minimal, short duration, and exposures are below the Action Level
☐	2	Work involves disturbance of silica containing materials requiring engineering and work practice controls for controlling dust. Control measures should be sufficient to maintain worker exposures below the Permissible Exposure Level
☐	3	Work involves the disturbance of silica containing materials, where contractors cannot fully and properly implement engineering controls sufficient to control worker exposures below the Permissible Exposure Level (PEL) or exposure conditions are unknown.
Noise		
☐	0	<85 dbA
☐	1	>85 less than 90 dbA
☐	2	90-100 dbA
☐	3	>100 dbA
Illumination		
☐	0	Permanent lighting **OR** Work during daylight
☐	2	Mixture of permanent and temporary lighting **OR** Work in low light conditions (dawn and dusk)
☐	3	No permanent or back–up lighting **OR** Work at night
Gas or Fuel Pipeline		
☐	0	N/A
☐	1	New Construction, isolated and depressurized system maintenance, repair, and replacement.
☐	2	Working on pressurized gas lines and equipment in normal operating conditions. Includes escaping gas and controlled blowing gas situations **OR** Less than 60% LEL
☐	3	Blowing gas, hazardous atmospheres, or confined spaces - SCBA and FR clothing are required **OR** Greater than 59% LEL
Asphalt (Bitumen) Fumes		
☐	0	N/A
☐	1	Outdoor paving work
☐	2	Indoor operations or minor roof repairs
☐	3	Roofing operations other than minor repairs
Carbon Monoxide		
☐	0	No potential
☐	1	0-10 ppm
☐	2	11-35 ppm
☐	3	Over 35 ppm
Fatigue Potential		
☐	0	Works less than 60 hours per week with at least one day of rest
☐	1	Works more than 60 work hours without one day off following

☐	2	Works five 12-hour days consecutively without two days off for rest following **OR** regularly scheduled shift work
☐	3	Works day shift and is sent home at midday to return during night hours **OR** works six 12-hour days without a day off **OR** Works 80 hours or more per week
Lone Worker Potential		
☐	0	No
☐	3	Yes
Heat Stress		
☐	0	Heat Index below 91° F
☐	1	Heat Index of 91-103° F
☐	2	Heat Index of 103-115° F
☐	3	Heat Index greater than 115° F
Air Contaminants		
☐	0	N/A
☐	1	Below the PEL
☐	2	Up to 10 times the PEL
☐	3	More than 10 times the PEL
Soil Conditions		
☐	0	N/A
☐	1	No prior commercial or industrial use of the area
☐	2	Brownfield site that is not covered by the HAZWOPER standard
☐	3	Site covered by HAZWOPER
Bird/Mouse/Pest Exposure Potential		
☐	0	No
☐	2	Yes (includes droppings, urine, saliva, and nesting materials which can transmit several diseases to humans)
Mold		
☐	0	N/A
☐	1	Limited Contamination; a combined total of 10 sf or less
☐	2	Mid-Size Contamination; combined total of 10 to 30 sf
☐	3	Large Isolated Areas more than 30 sf **OR** Extensive Mold Growth **OR** HVAC System Contamination
Asbestos		
☐	0	N/A
☐	1	Class 4 - Housekeeping and custodial cleanup of dust, waste, and debris from Class I, II, or III activities
☐	2	Class 3 - Maintenance and repair operations disturbing material containing > 1% asbestos
☐	3	Class 1/2 - Removal of thermal system insulation, surfacing materials, or other materials containing > 1% asbestos
Other Hazardous / Toxic Substances including Lead		
☐	0	N/A
☐	1	Below the Action Level **OR** Trained employees will properly handle materials, with PPE and limited/controlled exposure
☐	2	Above Action Level, but below the Permissible Exposure Level (PEL) **OR** Trained employees will handle substance in a controlled manner, but outside of typical conditions
☐	3	Over the PEL **OR** Trained employees will encounter hazardous or toxic substances under unknown circumstances
Radiation		
☐	0	N/A
☐	1	Work around a sealed source
☐	2	Removal of a sealed source in order to do work

☐	3	Active X-ray use, such as non-destructive testing
Chromium VI		
☐	0	N/A
☐	1	Sub Arc and TIG welding on chrome-based metals
☐	2	Flux core, Stick and MIG welding on chrome-based metals or chrome containing rod
☐	3	Carbon Arc cutting, Plasma arc cutting of chromium base metals

B

Appendix B- Hazard Assessment Tools

Appendix B.1- Job Hazard Analysis Sample Form and Example
Appendix B.2- Personal Protective Equipment Hazard Analysis
Appendix B.3- Daily Pre-Task Planning Sample Form

Fillable PDF ROCIP 5 Safety Manual Appendix Forms can be found at: Denver International Airport - ROCIP 5 Safety Manual Appendix Forms

Appendix B.1

Sample Job Hazard Analysis Form and Example

Job Hazard Analysis (JHA) – Sample Form

JHA #:	**Overall Risk Assessment Code (RAC) (Use highest code)**						
Activity/Work Task:	**Risk Assessment Code (RAC) Matrix**						
	Severity	**Probability**					
Date Prepared :		**Frequent (F)**	**Likely (L)**	**Occasional (O)**	**Seldom (S)**	**Unlikely (U)**	
Prepared by:	**Catastrophic (C)**	**E**	**E**	**H**	**H**	**M**	
	Critical (Cr)	**E**	**H**	**H**	**M**	**L**	
Reviewed by:	**Marginal (M)**	**H**	**M**	**M**	**L**	**L**	
	Negligible (N)	**M**	**L**	**L**	**L**	**L**	
Notes: (Field Notes, Review Comments, etc.):	**Step 1:** Review each "Hazard" with identified safety "Controls" and determine RAC (See above). **The RAC is developed after correctly identifying all the hazards and fully implementing all controls.**						
References :	**P "Probability"** is the likelihood to cause an incident, near miss, or accident and identified as: Frequent (F), Likely (L), Occasional (O), Seldom (S) or Unlikely (U).	**RAC Chart**					
	S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic (C), Critical (Cr), Marginal (M), or Negligible (N)	**E = Extremely High Risk**					
		H = High Risk					
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.	**M = Moderate Risk**					
		L = Low Risk					

Job Steps	Hazards	Controls	P	S	RAC

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements

Sample Job Hazard Analysis Form and Example

JHA #: 001	**Overall Risk Assessment Code (RAC) (Use highest code)**					**H**
Activity/Work Task: Very Brief Example – Ensure Details are Commensurate with Hazards	**Risk Assessment Code (RAC) Matrix**					
	Severity	**Probability**				
		Frequent (F)	**Likely (L)**	**Occasional (O)**	**Seldom (S)**	**Unlikely (U)**
Date Prepared: 01/01/1111	**Catastrophic (C)**	**E**	**E**	**H**	**H**	**M**
Prepared by: John Doe	**Critical (Cr)**	**E**	**H**	**H**	**M**	**L**
Reviewed by: John Smith	**Marginal (M)**	**H**	**M**	**M**	**L**	**L**
	Negligible (N)	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.):

References: SSSP, Circular Saw User Manual

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).
The RAC is developed after correctly identifying all the hazards and fully implementing all controls.

P "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent (F), Likely (L), Occasional (O), Seldom (S) or Unlikely (U).

S "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic (C), Critical (Cr), Marginal (M), or Negligible (N)

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Steps	Hazards	Controls	P	S	RAC
Cutting wood forms with circular saw	Lacerations	• Use sawhorses to hold material while cutting – secure material	O	M	M
		• Inspect saw- blade sharp, guards in place	U	N	L
	Noise	• Wear N-29 hearing protection	O	N	L
	Splinters	• Wear leather work gloves			
Setting and securing forms with rebar stakes	Struck by hammer	• Clear others of area	U	M	L
	Impalement on rebar stakes	• Install impalement protection when stakes are installed	U	M	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel	Inspection Requirements
Dozer	J. Crew-Qualified Operator	Daily equipment inspection
	D. Martin – Competent Person for Excavations	Frequently Inspect excavation

GENERAL INFORMATION **Call 303-342-4211 for all emergencies**

Project: _____ General Contractor: _____

Subcontractor(s): _____

JHA or Scope of Work this PPE Assessment applies to:

_____

DETAILS – Respirator, fall protection, and electrical PPE refer to applicable section in Section 6.3.

All DEN jobsites require, at a minimum, the use of hard hat, ANSI Class II vest, gloves appropriate to the worker's task, safety glasses, and safety toe (steel or composite) 6" boots. (See ROCIP Safety Manual Section 10.29 and Tech Spec. 013510.)

Contractor JHAs and/or required Exposure Specific Plans (ROCIP Safety Manual Section 6.3) shall include all the PPE indicated by this assessment, task specific PPE not indicated on this form such as personal fall arrest and respirators, and non-wearable specialized hazard-specific protective equipment, e.g. ARC rated blanket, welding screens, etc.*

Proper fitting and comfortable PPE is crucial for ALL workers. Employers must consider:

- Gender specific PPE.
- Ensuring variety and availability of sizes for their workforce for all necessary PPE.
- Eye protection is not "one-size-fits-all" and the shape of a worker's face may impact protection performance.

Resources for PPE Assessment Guidance: 1910 Subpart I App B and OSHA's Policy for PPE Enforcement (CPL 02-01-050)

Work will involve (select all that apply):			
Abrasive Blasting	Elevated Work	Low obstructions	Pressure Washing
Chemicals/liquids	Excavation	Material handling- Equipment	Sanding
Concrete Block/Brick	Formwork- Vertical	Material handling- Manual	Sawing
Compressed Air	General Construction	Mass Excavation	Spray Applications
Confined space	Generator	Other Compacting Tools	Steel Structure
Conveyors	Grinding	Overhead work	Temperature Extremes
Cranes	Hammering	Paving - Asphalt	Traffic
Cutting	Heavy Equipment Ops	Paving - Concrete	Trenching
Demolition	Hot Work (non-welding)	Pipe chases	Welding
Drilling	Jack Hammering	Plumbing	Work near Glycol Ponds
Electrical	Jet Fuel	Pneumatic Ops	Work near standing water
Other:			

Can any of the hazards or exposures identified by this assessment be eliminated or controlled, rather than using PPE?

Controlling hazards. PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices. (see 1910 Subpart I App B.)

Yes (please describe below) **No**

EYES/FACE			
Potential or Actual Work-Related Exposure:			
Airborne Dust	Flying debris	Hazardous liquids	Sun/environmental
Night/Dim Light	Welder's arc flash	Lasers	Splash hazard
Vapors	Silica/Slurry (concrete)	Above-the-shoulder work	Chemical
Employee wears Non-Safety Rx Glasses		Other:	
PPE Required:			
Rx safety glasses w/shields	Safety goggles	Foam lined safety glasses	Impact-rated goggles
Face shield	Impact-rated face shield	Welding shield- **shade:** ____	Laser safety glasses
Shaded safety glasses	Clear safety glasses	Over the glasses	Anti-fog
Polarized safety glasses	Double eye protection	Other:	

HEAD			
Potential or Actual Work-Related Exposure:			
Bumps/contusions	Exposure to electrical	Overheating	Other:
Falling objects	Swinging objects	Cuts/lacerations	
PPE Required:			
Type 1 hard hat	Type 2 hard hat	Class C hard hat	Other:
Welding hard hat	Chin Strap	Class E hard hat	

EARS- HEARING			
Potential or Actual Work-Related Exposure:			
Exposures over TWA	Power tools	Heavy equipment	Other:
Exposures over 100dba	Generator	Aircraft exposure	
PPE Required:			
Ear plugs	Earmuffs	Molded ear plugs	Double protection
Other:			

HAND/ARMS			
Potential or Actual Work-Related Exposure:			
Pinch points	Cuts/lacerations	Shock/electrocution	Sewage/Biological
Extreme heat/cold	Burns	Chemicals	Silica/Slurry
Crushed by	Vibration	Contact with/Impact (e.g. manual torquing, struck against)	
Other:			
PPE Required:			
Heat resistant gloves	Waterproof gloves	Kevlar sleeves	Impact protection gloves
Chemical resistant gloves	Anit-vibration gloves	Puncture resistant gloves	Nitrile gloves
Kevlar gloves	Aluminized gloves	Leather gloves	Impact protection gloves
Mechanic gloves	Electrical gloves	Coated gloves	String knit gloves
Cold weather gloves	Cut resistance gloves- **Rating:** _____		
Other:			

FEET			
Potential or Actual Work-Related Exposure:			
Crushed by	Pinch points	Dropped Objects	Potential puncture
Electrical	Cave in	Snow/ice	Sewage/Biological
Trench foot	Chemical	Silica/Slurry	Water or Marshy Soil
Other:			
PPE Required:			
6” Safety toed boots	EH rated boots	Metatarsal guards	Puncture resistant soles
Slip resistant boots	Cold weather boots	Rubber/Waterproof boots	Tape at ankles
Snow/ice traction devices	Chemical resistant boots	Conductive/static dissipating boots	
Other:			

Other Specialized Personal Protective Equipment			
High viz vest ANSI Class III	High viz jacket ANSI Class III	Tyvek suit	Cold weather gear
High viz gaiters (airside)	High viz pants ANSI Class III	Hard hat sunshade	Headlamp
Rain Gear	Knee Pads	Coveralls	Hard Hat Halo Lamp
Chemical Apron	FR clothing	Welding leathers	Cooling vest
Chaps	SPF rated shirt	Arc-rated clothing: **Rating: _____**	
Other:			

Additional Prescriptive Personal Protection Measures (non-wearable)

Provide additional attachments as necessary for your PPE Hazard Assessment. *
*This form is a template meant to address a wide range of common construction tasks and hazards and to help guide contractors through an assessment. It does not address fall protection, respiratory protection, or in-depth review of electrical PPE. Please review the ROCIP Manual for planning and standard requirements for Elevated Work, Respiratory Protection, and Electrical LOTO Methods of Procedure. Refer to OSHA 1910 Subpart I and OSHA 1926 Subpart E for full PPE regulatory requirements, as well as applicable Subparts for Contractor’s scope of work.

Appendix B.3
Daily Pre-Task Planning Sample Form

Daily Pre-Task Planning

Supervisor/Foreman: _____ Date: _____

Job Activity: _____

_____ _____

Signature – Supervisor/Forman | Signature – Project Manager/Safety Manager

LIST TASKS	
1. _____	6. _____
2. _____	7. _____
3. _____	8. _____
4. _____	9. _____
5. _____	10. _____

REQUIRED TOOLS

Air Compressor		Electrical Drill		Port Bandsaw	
Electrical Grinder		Roto Hammer		Chipping Gun	
Generator		Sawzall		Welding Machine	
Chop Saw		HydraulicJacks		Skill Saw	
Cutting Torch		Impact Wrench		Other Tool:	
Ladder		Electric Cords		Other Tool:	
Powder Actuated		Welding Leathers		Other Tool:	

REQUIRED EQUIPMENT

Crane		Dump Truck		Aerial Lift:	
Motor Grader		Scraper		Suspended Personnel	
Compactor		Roller		Platforms/Manbaskets:	
Excavator		Dozer		Other:	

IDENTIFY POTENTIAL HAZARDS

Particles in Eye		Chemical Burn		Thermal Burn	
Overexertion		Elevated Load		Live Utilities (above	
Abrasion/Cuts		Struck By		/below grade)	
Falls Over 6'		Overhead Work		Dropping Material &	
Strains/Sprains		Trip/Slip/Fall		Tools to Lower Level	
Fire		Cave-in		Moving Machinery	
Loud Noises		Heat/Cold Exp.		Moving Aircraft	
Pinch Points		Electrical Shock		Other:	
Other:		Other:		Other:	

IDENTIFY HAZARD ELIMINATION

Fall Protection		Toeboards/Netting		Be in the Proper Position	
Keep Area Cleaned		Sloping/Shoring		/Situational Awareness	
Guardrails		Proper Rigging		Tools/Materials Secured	
Fire Watch/Exting		Taglines		Coordination with Other	
Make Eye Contact		Get Help		Trades	

Additional Hazard Controls: _____

REQUIRED PERSONAL PROTECTIVE EQUIPMENT

Hardhat	✓	Hearing Protection		Safety Goggles	
Safety Glasses	✓	Face Shield		Welding Leathers	
Reflective Vest	✓	Metatarsal Guards		Welding Hood	
Safety Boots	✓	Rubber Boots		Other PPE:	
Work Gloves		Rubber Gloves		Other PPE:	

Permits and Plans Issued? (Check all that Apply)

Fall Protection Plan		Crane: Critical Lift Plan		Confined Space Permit	
Energized Electrical Work Permit		Hot Work Permit		Excavation Plan	
Other:		Other:		Other:	

List each employee covered by this Pre-Task Planning Sheet: (Print name and have each employee initial to acknowledge understanding of job specific hazards/mitigations identified by this Pre-Task Planning Sheet)

Name	Initials	Name	Initials

Near Miss Report

Time of Occurrence: _____

Describe Near Miss: _____

Actions Taken to Correct/Prevent Similar Incidents: _____

C

These forms will be completed in PDF format.

Appendix C- Exposure Specific Planning Forms

For all plans in Section 6.3, Contractor will complete the associated Appendix C form listed, provide a scope of work, attach all requested documents included on the Appendix forms, **and attach the Job Hazard Analysis or Method of Procedure** which covers their scope of work. The Appendix forms are meant to highlight common planning scenarios and safety requirements and may not cover all scenarios and where the contractor or DEN deems it necessary, additional planning may be required.

Fillable PDF ROCIP 5 Safety Manual Appendix Forms can be found at: Denver International Airport - ROCIP 5 Safety Manual Appendix Forms

Appendix C.1 – Crane and Lift Plan
Appendix C.2 – Critical Lift Plan Form (F)
Appendix C.3 – Shared Space Agreement Sample Form
Appendix C.4 – Suspended Personnel Work Platform Checklist
Appendix C.5 – Elevated Work – Ladders
Appendix C.6 – Elevated Work – Mobile Elevated Work Platforms (MEWPs)
Appendix C.7 – Elevated Work – Fall restraint/Arrest and Leading-Edge Protection
Appendix C.8 – Elevated Work - Scaffolding
Appendix C.9 – Electrical LOTO
Appendix C.10 – Non-Electrical Hazardous Energy and Water Systems LOTO
Appendix C.11 – Utility Damage Prevention – Ground and Surface
Appendix C.12 – Utility and Structure Damage Prevention – Walls and Floors
Appendix C.13 – Trenching Work Plan
Appendix C.14 – Confined Space Plan
Appendix C.15 – Sample Confined Space daily permit
Appendix C.16 – Silica Exposure and Slurry Control Program
Appendix C.17 – Demolition Plan
Appendix C.18– Ventilation Plan
Appendix C.19 – Respiratory Protection Plan
Appendix C.20 – Hot Work Permit Sample Form
Appendix C.21 – Wet Work Permit Sample Form
Appendix C.22 – Public and Adjacent Worker Protection Plan
Appendix C.23 – Heavy Equipment and Operator List
Appendix C.24 – Additional Personnel List
Appendix C.25 – Sample Emergency Lock Removal Form for Absent Worker

GENERAL INFORMATION

Call 303-342-4211 for all emergencies

Project: ____ General Contractor: ___________________________________

Subcontractor(s): ____

Date of anticipated Work Start: ___________ Submittal Date: ____________ ☐ Original ☐ Rev- Previous Sub #__________

Person Completing this Form: ________________________________ Employer: ______________________________________

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – include specific locations, materials being hoisted, obstructions, etc.:
If field adjustments need to be made to this plan, immediately notify your contractor safety representative.

7460 Valid for ________ ft and end date _________

CRANE PERSONNEL DETAILS – **Every role must be assigned. May hold duplicative roles as allowed. Attach certifications/training documentation.**

Employee Name	Signal Person	Rigger	Site Supervisor	Lift Director	A&D Director	Employer	Name of Employer Representative Making Designation or Authorization	Employer Rep. Signature
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
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	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			

CRANE OPERATORS – Attach operator certifications/training/employer evaluation documentation. Duplicate this sheet as necessary.

☐ **Check if signed employer evaluation forms are attached that provide equivalent information as the list below.**
Complete form below if employer does not have evaluations attached.

Operator Name	Certification Expiration Date	Employer Evaluation Date	For the crane Make and Model listed below	
			Capacity (tons)	Attachments

Operator Employer: _____

Employer Evaluation completed by: _____ Signature: _____

DETAILS – All fields must be completed.

Crane Details – Contractor must submit separate submittals for each crane				
Crane Make	Crane Model	Serial #	Date coming to site	Date of 3rd Party Insp.

Company providing crane: _____

Third-party crane inspections do not need to be attached to this submittal. When they are submitted, please reference the submittal number. The 3rd-party inspection must be accepted by DEN Safety through written communication (text, email, or Unifier acceptance) prior to any lift activities. ☐ Third-Party inspection is attached to this submittal.

Have you coordinated review of the 3rd-party inspection w/ DEN Safety for the dates listed above? ☐ Yes ☐ No

Lift Details		
Maximum Lift Weight:	Capacity at Lift Radius:	Percent Capacity:
☐ Check here if the lift is considered critical for planning purposes.		
▪ The gross load exceeds 75% of lifting capacity ▪ The lift requires multiple cranes. ▪ The load will be swung over or towards occupied areas, unprotected plant, equipment, or utility service. ▪ The load will be swung over occupied scaffolding.	▪ The lift is performed in proximity to live electrical lines. ▪ Hoisting of personnel. ▪ Using chains for lifting. ▪ DEN deems there is potential for negative impact on airport operations.	

Required Attachments			
☐	Annual Inspections (previous 3 years)	☐	Certification/Training/Evaluation Documentation
☐	Custom Engineered below the hook device – PE drawings (if applicable) *	☐	Rigging Component Manufacturer charts with capacity and connection requirements *
☐	Other:		

* These are required for both Critical and Non-Critical Lifts

Additional Required Attachments for Critical Lifts (Critical Lift definition- see Section 6.3.1.3)			
☐	Critical Lift Plan (Appendix C.2)/crane placement and radius diagram	☐	Rigging Diagram with component & capacity callouts when de-rated due to sling angles
☐	Other:		

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

Critical Lift Plan Worksheet

Crane Make/Model/Serial #: _____ Anticipated Lift Date: _____
Lift Location: _____
Load Description: _____
Required Attachments:

- Copy of load chart for applicable crane configuration
- Diagram of crane lift & load placement
- Rigging certifications
- Diagram of rigging configuration with load calculation
- Copy of crane's annual inspection

A. Load

1. Wt. of load _____lbs
2. Wt. of auxiliary block _____lbs
3. Wt. of main block _____lbs
4. Wt. of lifting bea _____lbs
5. Wt. of slings/shackles/other rigging _____ lbs
6. Wt. of jib (erected/stowed/stored) _____lbs
7. Wt. of hoist rope (#parts X L X unit wt.) _____ __lbs
8. Wt. of excess load material _____lbs
9. Other _____lbs

GROSS WEIGHT _____lbs

Source of load Wt. information (drawings, calcs, etc.)
_____
Load Wt. confirmed by:
_____

B. Crane

1. Type of crane _____
2. Counterweight _____ _____ lbs
3. Boom length ____ ft / boom configuration _____
4. Radius at pick-up _____ft/set-down_____ ft
5. Crane capacity at radius: over rear _____ lbs over side _____lbs / over front _____ lbs
6. Boom angle at pickup ____ ft / set down _____ ft
7. Max. rated capacity of crane at this boom length, radius and boom angle for this lift _____lbs
8. Max. load on crane for this lift is _____ _lbs
9. Lift is _____% of the crane's rated capacity

C. Jib/Fly

1. Erected _____ Stowed _____ Stored _____
2. If jib/fly to be used: length _____ angle _____
3. Rated capacity of jib/fly from chart _____ lbs

D. Hoist Rope

1. Rope diameter _____ Number of parts _____
2. Lift capacity based on parts _____lbs

E. Rigging

1. Sling configuration (chocker, basket, straight)
2. Sling material _____
3. No. of slings _____size_____ length _____
4. Sling assembly rated capacity _____lbs
5. Shackle size _____ No. of shackles _____
6. Shackle rated capacity _____lbs
7. Shackle secured to load by _____
8. Spreader beam capacity _____ lbs

F. Crane Placement

1. Any deviation from smooth, solid foundation? _____

A. Distance to nearest overhead power line? _____
B. Buildings, equipment, plant, or services to lift or swing over? _____
C. Crane travel during lift? _____
D. Swing direction? _____
E. Will crane be set up away from excavations? _____ (horizontal clearance shall be greater than hole depth)

G. Considerations

1. Multiple crane lifts require a separate plan for each crane.
2. Any changes in crane configuration, placement, rigging, lifting scheme, or calculations require that a new lift plan be developed
3. Number of taglines required to stabilize load _____
4. If other personnel or equipment, other than lift team and their equipment, are near lift. Barricade and evacuate the lift area. Complete N/A
5. Check crane's operator manual for maximum wind speed a lift may be executed _____ mph.
6. Surface area of load should be considered for impact due to wind.
7. Method of communication between signal person and operator: Radio Hand Signals

Crane Operator: I have been briefed of the contents of this lift plan and accept the duty of ensuring the lift is carried out to the agreed procedure, to the limits of my responsibilities.

_____ _____ _____
Name Signature Date

Lifting Supervisor: I have been briefed of the contents of this lift plan and accept the duty of ensuring the lift is carried out to the agreed procedure.

_____ _____ _____
Name Signature Date

GENERAL TERMS, DEFINITIONS AND BACKGROUND INFORMATION

1. This **Shared Airspace Agreement** is between (Named Contractor) and (Named Contractor).
2. (Contractor) is operating a (crane model, type) crane at (Specific Location and Project Name) near the intersection of (street, intersection, city and state).
3. (Contractor) is operating a (crane model, type) crane at (Specific Location and Project Name) located near the intersection of (street, intersection, city and state).
4. The (Contractor's) (crane model, type) crane and the (Contractor's) (crane model, type) crane share a common or overlapping airspace with the potential for the two crane booms and/or associated rigging to collide.
5. The (Contractor) tower crane is positioned on an engineered foundation. The radius, swing or operational area of the tower crane cannot be adjusted or changed. The (Contractor's) crawler crane is mobile. The location of the (Contractor's) crawler crane can be altered, thereby changing the radius, swing or operation area of the crawler crane. Relocation of the (Contractor's) crawler crane may change or alter the size or location of the overlapping airspace of the two cranes.
6. Under normal operating conditions, assuming no shared, common or overlapping airspace, the (Contractor's) tower crane would weathervane (swing freely) during non-operating hours. The risk associated with the ability of the (Contractor's) tower crane to weathervane when not in operation is unacceptable whenever (Contractor) plans to work and (Contractor) is not operating or manning their tower crane.
7. Both the (Contractor) (crane model, type) crane and the (Contractor) (crane model, type) crane have established safe operating air speed limits for operation. The maximum air speed for safe operation of the (Contractor's) (crane model, type) crane is **(XX) miles per hour**. The maximum air speed for safe operation of the (Contractor's) (crane model, type) crane is **(XX) miles per hour**.
8. The (Contractor's) tower crane can be guyed off or tied down safely without placing any additional loads on the tower crane foundation at all air speeds below **(XX) miles per hour.** Guying off the tower crane when not in operation and ensuring that the boom is anchored outside the common or shared airspace would allow (Contractor) to operate their crane without (Contractor) manning their tower crane.
9. All cranes in the State of (Name) are regulated by OSHA. Both (Contractor) and (Contractor) will operate their respective cranes within OSHA regulations at all times.
10. The (Contractor) crawler crane was in operation before the installation of the (Contractor) tower crane. (Contractor) requested and received prior approval from OSHA before installing the tower crane. The OSHA prior approval was conditioned upon both crane operators having instant, continuous, dedicated mobile communication at all times. OSHA was aware of the existence of the (Contractor) (crane model, type) crane and the shared airspace problem before giving approval to (Contractor) to install the (crane model, type).
11. After installation of the (Contractor) tower crane OSHA requested that both (Contractor) and (Contractor) sign a written agreement to ensure that both cranes would operate in the shared or common airspace safely. This original agreement was the (Contractor) letter to OSHA signed by both (Contractor) and (Contractor) and dated (Day-Month-Year).

SPECIFIC TERMS TO INCLUDE OPERATING PROCEDURES

1. (Contractor) and (Contractor) both agree that the (Contractor) letter to (Name) of OSHA dated (Day-Month-Year) is hereby null and void. This original agreement did not include a procedure for dealing with the excessive amount of overtime crane operations by (Contractor). The original agreement did not discuss the conditions under which the tower crane would weathervane. The operating procedures defined in the (Contractor) letter to OSHA dated (Day-Month-Year) are hereby replaced by the operating procedures in this Shared Airspace Agreement. This Shared Airspace Agreement has been reviewed and approved by OSHA.
2. When both cranes are in operation at the same, time both crane operators will have instant, continuous, dedicated mobile communication. Before either crane approaches the shared or common airspace the other crane operator must provide clearance. If any doubt or confusion exists, the crane operator will not enter or even approach the shared airspace. (Contractor) and (Contractor) agree to allow both operators to communicate, share information and work together to ensure safe crane operations for both companies.
3. (Contractor) and/or (Contractor) will not, under any circumstances, operate their crane when the air speed exceeds the safe operating air speed for that crane. (Reference Line Item # 7)
4. (Contractor) will place the boom of their tower crane outside the shared or common airspace at the end of every work shift. (Contractor) will guy off or secure the boom in this safe location allowing (Contractor) to operate within the shared airspace without (Contractor) manning their tower crane. (Contractor) must release the guying cables and allow the tower crane to weathervane (swing freely) when air speeds exceed **(XX) miles per hour.**

5. (Contractor) will place the boom of their crane well beyond or outside the shared airspace at the end of every work shift. Although the Sumitomo SC 1500 crawler crane does not weathervane, (Contractor) is responsible for ensuring that their crane boom remains outside the shared airspace whenever their crane is not manned or in operation.
6. (Contractor) will install and monitor an air speed indicator on their tower crane. (Contractor) will confirm the weather report before leaving the jobsite after each work shift. (Contractor) will provide air speed and/or weather forecast information to (Contractor) upon request. The intent is to communicate weather information that may predict air speeds and/or weather conditions that are unsafe for continued crane operations. (Contractor) cannot operate their crane under extreme weather conditions. (Contractor) cannot guy off or secure their tower crane under extreme weather conditions.
7. Before the end of every (Contractor) work shift the (Contractor) superintendent will review the current air speed and weather forecasts. If these weather reports and/or air speed monitor(s) indicate or forecast that weather conditions may deteriorate and cause air speeds in excess of (XX) miles per hour (the maximum safe operating air speed for the {Contractor} mobile crane) Contractors will discuss their intention to continue crane operations under these severe weather conditions.
8. (Contractor) or (Contractor) may decide to start operating their crane when the other company is not manning their crane. This may happen during overtime conditions to include weekday nights, weekends or holidays. If either (Contractor) or (Contractor) commences crane operations when the other crane is not manned, they must confirm that the other crane is safely outside the shared or common airspace. DO NOT ASSUME THAT THE OTHER CRANE IS GUYED OFF, SECURED OR OUTSIDE THE SHARED AIRSPACE AREA BEFORE STARTING CRANE OPERATIONS. A simple visual inspection will confirm that the (Contractor) tower crane is safely guyed off and secured. The guying cables are clearly visible and (Contractor) can easily confirm that the guyed off and secured tower crane will remain outside the shared or common airspace. Confirmation that the (Contractor) tower crane is safely guyed off before commencing an overtime (Contractor) shift is important given that the (Contractor) tower crane has the potential to weathervane into the shared or common airspace. Confirmation that the (Contractor) tower crane is safely guyed off and secured is critical after a major storm has passed through the area. A major storm may have forced (Contractor) to release the guyed cables and allow the tower crane to weathervane. (Contractor) will also ensure that the (Contractor) crane is safely outside the shared airspace area before commencing crane operations.
9. Under normal weather conditions (Contractor) agrees to take all actions necessary to ensure that their tower crane is safely guyed off and secured; and out of the shared or common airspace when their tower crane is not manned. (Contractor) must release the guying cables and allow the tower crane to weathervane when air speeds approach **(XX) miles per hour**.
10. Both (Contractor) and (Contractor) agree to provide the other party to this Shared Airspace Agreement with advance written notification of any change to crane configuration, size, location or operation that may possibly impact the size or location of the shared airspace zone.
11. Both parties to this Shared Airspace Agreement reserve the right to contact OSHA if the other party violates the letter or intent of this Shared Airspace Agreement. OSHA has the authority to shut down one or both cranes. Both parties agree to work together to ensure a safe operating environment for both cranes. A copy of this fully executed Shared Airspace Agreement will be provided to OSHA.
12. This Shared Airspace Agreement will remain in effect until either (Contractor) or (Contractor) permanently remove their crane(s) from their jobsite thereby eliminating any shared airspace problem.
13. This Shared Airspace Agreement can only be modified in writing. Any changes must be agreed to, signed by both parties to this agreement.

ACCEPTED AND AGREED:

Contractor	Authorized Representative	Signature	Date
Contractor	Authorized Representative	Signature	Date

Date:	Competent Person:	
Crane Make:	Model:	Serial Number:
Equipment Number:	Hours:	Crane Capacity:

(1.) CRANE REQUIREMENTS

Contractors and/or users must ensure that all items in this checklist are satisfied, including compliance with all safety requirements prior to making a lift. All precautions and instructions on the decals attached to the crane and the platform must be strictly adhered to.

Check "Yes" to verify compliance:

☐No	☐ Yes	Use of a manbasket is the safest and most practical way to accomplish the task.
☐No	☐ Yes	All crane inspections are current per ANSI B30.5 requirements.
☐No	☐ Yes	All hooks have a current inspection per ANSI B30.10 and have positive locking type hook latches.
☐No	☐ Yes	The correct load chart is with the crane and the operator is thoroughly familiar with all special notes and manufacturer recommendations given on the chart.
☐No	☐ Yes	All operational aids and safety devices in the crane are functioning and the operator is fully versed in their operation.
☐No	☐ Yes	The load lines have a 7:1 safety factor (10:1 when using non-spin rope). NOTE: This is achieved by a 50 percent de-rating of the crane load chart.
☐No	☐ Yes	The crane is on firm footing and the crane outriggers are all the way out, down, and locked as applicable.
☐No	☐ Yes	The crane is level within 1 percent, (1 foot in 100 feet) and is on firm surface. NOTE: Stability of the footing will be verified during the full cycle of the operation test.
☐No	☐ Yes	Means have been provided to enable the operator to ensure that the crane is level.
☐No	☐ Yes	A firm, level surface has been prepared and designated as a "runway" or path of travel for the weight and configuration of the crane begin used.
☐No	☐ Yes	The crane counterweights are per manufacturer specification.
☐No	☐ Yes	All load lines are properly revved and laying properly on the drums.
☐No	☐ Yes	All drum hoists have full control load lowering. NOTE: Free fall is not to be used.
☐No	☐ Yes	The boom is fully powered up and down, live boom is not to be used.
☐No	☐ Yes	The boom angle and radius indicator works. NOTE: Measure radius with tape measure on conventional cranes.
☐No	☐ Yes	The boom length indicator on telescoping booms is fully functional.
☐No	☐ Yes	The positive anti two-block device is functioning properly. NOTE: A warning system alone does not suffice.

(2) RIGGING REQUIREMENTS

☐No	☐ Yes	Each bridle leg is connected to the master link, or shackle in a way that ensures the load is evenly distributed between all the bridle legs.
☐No	☐ Yes	All rigging, wire rope, shackles, rings, master links, and other rigging hardware, have a minimum safety factor of 5:1. NOTE: When non-spin cable is used, a minimum safety factor of 10:1 is required.
☐No	☐ Yes	All wire rope eye fittings are provided with thimbles.
☐No	☐ Yes	All load hooks are closed with locking type latches.
☐No	☐ Yes	All rigging equipment for the manbasket is exclusively for that use only.
☐No	☐ Yes	All rigging has been inspected for kinks or damage of any kind.
☐No	☐ Yes	Shackle pins are of the nut-with-pin-retainer-type.

(3) MANBASKET REQUIREMENTS

☐No	☐ Yes	The basket has been designed with a 5:1 safety factor by a qualified engineer and welded by a qualified welder.
☐No	☐ Yes	The suspension rigging system has been designed in such a way as to minimize tipping of the manbasket.
☐No	☐ Yes	The maximum rated load and maximum capacity is posted on a permanently affixed plate on the manbasket.

☐No	☐ Yes	The guardrail designed to enclose the platform is provided and is enclosed from the toeboard to the mid-rail.
☐No	☐ Yes	Body harness anchorage provided.
☐No	☐ Yes	The access gate has been designed to open in and is positively prevented from swinging outward while the manbasket is in use.
☐No	☐ Yes	The access gate must have a positive locking system to prevent accidental opening during operation.
☐No	☐ Yes	The design allows enough headroom for employees to stand upright.
☐No	☐ Yes	There are no rough edges on any manbasket surface.
☐No	☐ Yes	In addition to hard hats, overhead protection is provided when employees are exposed to falling objects.
☐No	☐ Yes	A trial-lift meeting has been attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the employee responsible for the task to be performed
☐No	☐ Yes	Precautions have been taken to protect employees from any special hazards in the area where the crane and manbasket will be operating; for example, power lines or areas where the manbasket will be out of the operator's view.
☐No	☐ Yes	Special precautions have been taken to protect personnel from electrical hazards. When the crane with a manbasket is working near electrical lines or devices, the minimum working clearances shall be at least twice those for material handling operations.
☐No	☐ Yes	A manbasket use authorization has been issued dated and properly signed for the task at hand.
☐No	☐ Yes	The manbasket and rigging has been proof-tested to 125 percent of the platform rated capacity.
☐No	☐ Yes	An unoccupied trial lift loaded to at least the anticipated lift weight has been performed and hoisted to each location where work is to be performed, or to any point where employees are expected to enter or exit the platform. NOTE: The trial lift must be performed each time the crane is moved.
☐No	☐ Yes	A post trial-lift inspection of the crane has been carried out by a designated employee.
☐No	☐ Yes	The loading is less than 50 percent of the crane-rating chart for all work locations.
☐No	☐ Yes	The operator has determined that all systems, controls, and safety devices are activated and functioning properly and that no interferences exist.
☐No	☐ Yes	The manbasket has been hoisted a few inches and has been re-inspected after the trial lift for any deficiencies.
☐No	☐ Yes	Prior to hoisting personnel, the manbasket has been hoisted a few inches to verify its hang level.
☐No	☐ Yes	All hoist ropes are free of kinks.
☐No	☐ Yes	Multipart lines are not twisted around each other.
☐No	☐ Yes	The hook is centered over the load.
☐No	☐ Yes	The hoist lines are laying properly on hoist drums and in the sheaves.
☐No	☐ Yes	All post trial lift defects have been corrected.
☐No	☐ Yes	The crane-bearing surface has been rechecked and crane re-leveled as required.
☐No	☐ Yes	Have the crane safety components, dogs, pawls, brakes, etc., have been re-inspected after the trial lift.
☐No	☐ Yes	Travel with the crane is not permitted except where all requirements are satisfied and where not to do so would endanger life
☐No	☐ Yes	The operator has been advised that the load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs must be engaged when the occupied personnel platform is in a stationary working position.
☐No	☐ Yes	The operator has been advised that the platform must be hoisted in a slow, controlled, cautious manner with no sudden movement of the crane, derrick or platform.
☐No	☐ Yes	The operator has been advised that the platform must be hoisted in a slow, controlled, cautious manner with no sudden movement of the crane, derrick or platform.
☐No	☐ Yes	Employees have been advised to perform tasks specified in the manbasket authorized only. NOTE: Only the number of employees needed for the task at hand is allowed to be hoisted.
☐No	☐ Yes	All employees have been advised to keep all body parts inside the platform during raising. NOTE: This provision does not apply to an occupant of the platform performing the duties of a signal person.
☐No	☐ Yes	All employees have been advised that they are not allowed to enter or exit the platform when it is secured to the structure where the work is to be performed unless securing to the structure creates an unsafe situation.

☐No	☐ Yes	All employees have been advised that they are not allowed to exit the platform before landing.
☐No	☐ Yes	All employees have been advised that taglines must be used unless their use would create an unsafe condition.
☐No	☐ Yes	The operator has been advised to remain at the controls at all times while the crane engine is running and the platform is occupied.
☐No	☐ Yes	All employees have been advised that platform use must be promptly discontinued if there is any indication of dangerous weather conditions or other impending danger.
☐No	☐ Yes	The operator is in constant contact by standard hand signals or voice communications during operation of crane and manbasket.
☐No	☐ Yes	All employees have been advised to remain in continuous sight of or in direct communication with the operator or signal person.
☐No	☐ Yes	All employees have been advised that the use of a radio is permissible when direct visual contact is not possible, or where the use of a signal person could create a greater hazard.
☐No	☐ Yes	All employees occupying the platform have been advised to wear a body belt or harness system, with the lanyard appropriately attached to the lower load block, overhaul ball, or structural member within the personnel platform capable of supporting the fall impact for employees using the anchorage.
☐No	☐ Yes	All employees have been advised to wear a life vest when working over water.
☐No	☐ Yes	Employees have been advised to secure materials and tools to prevent displacement during the lift.
☐No	☐ Yes	All employees have been advised to load the manbasket evenly and to only carry tools and materials needed for the task at hand.
☐No	☐ Yes	The operator, and all employees that will be using the platform, have been advised that no other object may be lifted on any of the crane load lines while the platform is suspended.
☐No	☐ Yes	An audible and visual device has been provided to the personnel in the platform so that they can signal for assistance in the event of an emergency.
☐No	☐ Yes	Personnel have been advised to stand firmly on the floor of the platform and to not sit or climb on the edge of the platform or use planks, ladders, or other devices for attaining a work position.
☐No	☐ Yes	If welding is to be performed by employees occupying the platform, the electrode must be protected from touching the metal components of the platform.
☐No	☐ Yes	Any needed repairs to the crane or manbasket used only original manufacturer parts to ensure that the new components are compatible with their original counterparts.
☐No	☐ Yes	Care taken to prevent ropes, electrical chords, and hoses from becoming entangled in the platform when the platform is being moved.
☐No	☐ Yes	Operator aids or interlocks have not been altered, modified, or disabled in any way.
☐No	☐ Yes	The crane operator responsible for operating the cranes used for personnel handling is a thoroughly trained operator and has related experience operating the subject crane.
☐No	☐ Yes	All manuals, operating instructions, and load charts provided have been read and understood by the operating personnel prior to starting the operation.
☐No	☐ Yes	The operator has ensured that the area surrounding the platform is clear of personnel and equipment before moving the platform.
☐No	☐ Yes	Prior to the trial lift at each new location, a pre-lift meeting has been held, and is also held for any new employee assigned to the manbasket.
☐No	☐ Yes	All deficiencies discovered in post trial-lift inspection have been corrected.
☐No	☐ Yes	All employees attending the pre-lift meeting signed the roster for the meeting.
☐No	☐ Yes	The trial-lift calculation sheet has been completed, signed and dated.

(4) PERSONNEL PLATFORM WEIGHT CALCULATION SHEET

- Platform Rated Capacity _____
- 125 Percent Proof Test ***(NOTE:** Suspend test load for 5 minutes)* _____
- Number of Occupants x 250 lb. each _____
- Tools plus materials in platform _____
- Misc. weight not otherwise listed _____
- Tare Weight of Platform Plus Rigging _____
- Total Occupied Weight of Platform _____
- Hoist Line Cable Weight: _____
- Headache Ball Weight _____
- Load Block Weight _____
- Rooster Sheave Weight _____
- Effective JIB Weight: _____
- (If Hoisting on Main Loadline) _____
- JIB Weight Stowed _____
- Misc. Weight Not Otherwise Listed _____
- Total Load Chart Deductions _____
- Total Weight, “W” (Total Load Chart Deductions Plus) _____
- Total Occupied Weight of Platform _____
- Capacity of Crane at Minimum Radius _____
- Capacity of Crane at Platform Work Radius _____
- 50 Percent of Crane Capacity at Minimum Radius _____
- 50 Percent of Crane Capacity at Platform Working Radius _____
- Total Load, “W” Divided by 50 Percent Crane Rating=Percent of De-rated Capacity Used

Crane Operator Name/Signature:	Rigger Name/Signature:	Lift Supervisor Name/Signature:

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – Check all fields that apply to ladder elevated work

Indicate below what type of ladder(s) that have been selected by the competent person(s) – Check all that apply.					
☐	A-Frame	☐	Extension	☐	Single
☐	Combination (A-Frame to Extension)	☐	Sectional (Break-Apart Extension)	☐	Platform/Podium/Maintenance Lift
☐	Manhole	☐	Fixed	☐	Job-Built
☐	Stepstools	☐	Ships Ladder	☐	AdjustaStairs (or similar)
☐	Other:				

Indicate manufacturer ladder attachments that will be used. **Instructions on proper installation must be attached for employee reference.**					
☐	Working platform	☐	Leveler	☐	Stabilizer
☐	Walk through extension	☐	V-rung	☐	Cable hook
☐	Other:				

Ladder Use:			
☐	Working at height from ladder	☐	Using ladder to access elevated working surface*

* **Ladders used for access for more than one shift shall have a walk-through ladder extension with a self-closing gate mechanism.**

Ladder Requirements

- Only Class IA or IAA Heavy Duty fiberglass are allowed on-site. Aluminum/Metal ladders are prohibited.
- Ladders must be inspected daily prior to use according to the manufacturer's recommendation.
- Personnel must ascend/descend the ladder, always maintaining at least three points of contact. No tools or equipment will be carried.
- Always face the ladder while working and work within the rails of the ladder. The top two steps or as indicated by manufacturer may not be used.
- Tools shall not be left unattended on top of ladder.
- Ladder may not be used by leading edge without fall protection. Ladder must be the height of the ladder plus 5 feet away from leading edge or edge protected by guardrail.
- Extension ladders need to be set to a 4:1 angle.
- Ladders shall be used only on stable surfaces and must be level. All ladders must have slip resistant feet.
- Extension ladders used for access cannot exceed 24ft between elevations.
- Company name must be on ladder.

Overhead Hazard Protection Methods for Employees and/or Public **(Attach users manuals for equipment)**			
☐	Tool Tethers	☐	CAZ (Danger Tape and Signs) Radius:
☐	Cattle Guard	☐	Other:

Risk Assessment and Operation Planning for any ladder elevated work **(Please Explain and include ladder/working height)**
Identify which fall prevention/protection methods will be used for specific task. Add additional task/work area as needed.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix XXX if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – Check all fields that apply to elevated work

Indicate below what type of Mobile Elevated Work Platform(s) that have been selected by the competent person(s) – attach users manuals. (A = Scissor, B = Aerial Boom)					
Type (A or B)	**Make**	**Model**	**Capacity (lbs or persons)**	**Max Platform Ht.**	**MEWP Supervisor**

Indicate below what manufacturer approved attachments or features will be used – attach user's manuals.					
☐	Basket extension/slide	☐	Panel carrier	☐	Fall arrest bar
☐	Pipe cradle	☐	Glass and panel cradle package	☐	Access deck/Safe step
☐	Other:				

Does use of attachment require you to downgrade the Capacity above by weight or number of person(s)? ☐ Yes ☐ No
If yes, how many people can be in basket during use? _____

If task requires leaving basket to transition to another working surface, please explain:
What is the working surface that the worker is transitioning onto? ***Ingress/egress only at manufacturer gate, no climbing over guardrails.***
How will worker(s) be anchored? ☐ to equipment ☐ outside equipment (complete Fall Restraint/Arrest Plan, Appendix xxx) ☐ No anchor necessary
Height of working surface where transition takes place? _____ ft
Explain how you will avoid any entanglement hazards while extending over structures:

The contractor has confirmed building live load can bear weight of equipment: ☐ **Y** ☐ **N- if no, stop.**

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – include specific building/roof locations:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – Check all fields that apply to work in this specific task

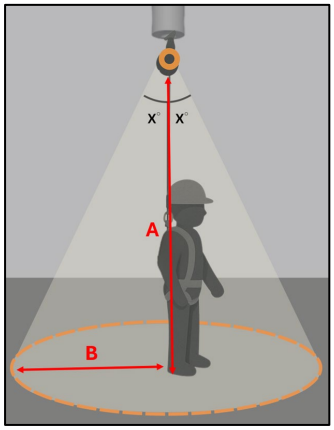
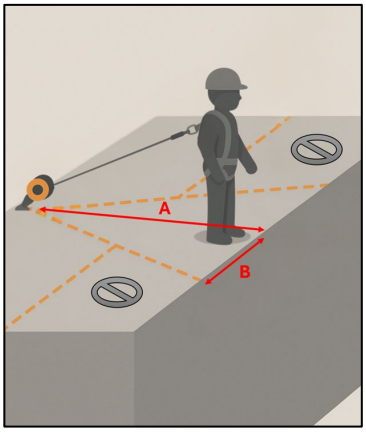
Indicate below the type of fall hazard identified by the competent person(s) – Check all that apply to this specific task.	
☐	Unprotected elevated work platform or leading edge (includes Fall Restraint/Protection for excavation leading edge work) Length of Leading Edge: _____ ft
☐	Unprotected wall opening with fall exposure
☐	Uncovered hole, skylight, or floor opening in work zone
☐	Climbing vertical rebar or form work
☐	Steel structure/concrete beam/other beam
☐	Work above moving machinery/water
☐	Work from ladders or stilts requiring simultaneous use of personal fall arrest (e.g. near leading edge or guardrail)
☐	Potential public or adjacent worker exposure (e.g. Concourse loading doors) Must complete Appendix C.22 Public Worker Protection Plan
☐	Other:

Risk Assessment and Operational Planning for fall hazard identified above (Please explain)
Identify which fall prevention/protection methods will be used for specific tasks. Add additional sheets as needed.

Protection and Prevention Methods for Employees (Attach users manuals for specific equipment to be used)			
☐	Personal Fall Arrest System	***Controls in bold require an accepted variance request- SUB#_____***	
☐	Restraint/Positioning System	☐	**CAZ or Warning Line**
☐	Horizontal Lifelines (elevated)	☐	**Horizontal Lifelines- foot level**
☐	Guardrail System ▪ Top rail: > 42” +/- 3”. 200# min ▪ Mid-rail: Approx. ½ top rail and surface. 150# min ▪ Toeboards: 3.5” min if falling objects are hazard. 50# min	☐	Netting ▪ Free fall distance to netting = [_____] ▪ Impact Capacity = [_____] ▪ Inspection Interval = [_____]
☐	Administrative controls- Explain:		
☐	Other:		

Anchor Type and Installation Height (Attach users manuals for equipment and/or engineering)			
Anchor Installation Height			
☐	At or below harness D-ring/foot level	☐	Above harness D-ring/overhead
Anchor Type			
☐	Cable anchor strap	☐	Designed structural anchor (built-in)
☐	Beam strap – Installation per the manufacturer: ☐ Small D-ring must pass through large one- tightened ☐ Basketed – must be allowed by manufacturer ☐ May be wrapped multiple times per manufacturer	☐	Portable anchorage (Counterweight, FP cart, etc.) Number of counterweights _____ Weight of each counterweight _____
		☐	Horizontal Lifeline (HLL)
☐	Tie-back lanyards	☐	Davit Arm – truck mounted
☐	Existing building roof anchor (PMT/Safety acceptance required)	☐	Davit Arm – mobile
☐	Specialty anchor (parapet, door or window jamb, etc.)	☐	Davit Arm – attached to structure or other equipment
☐	☐ Vertical and/or ☐ Horizontal Beam clamp or trolley - Does attachment require removal of Fireproofing? ☐ Y ☐ N		
☐	Penetrating Anchor – Drop-in, butterfly, cradle, etc. (Complete Penetrating Anchor Requirements Section)		

Anchor Specifics for Personal Fall Arrest/Restraint (Attach users manuals for equipment and/or engineering)

All Types of Anchors – REQUIRED	Penetrating Anchor Requirements – if applicable	
Are softeners required? ☐ Y ☐ N	☐	Roofing anchor (butterfly, cradle, or another penetrating-type anchor) (PMT/Safety acceptance required)
Minimum Torque (if applicable): _____ft-lbs. ☐ N/A	☐	Drop-in (re-usable)
Working Radius (WR) or Zone:	☐	Drop-in (one time use)
A=_____ B=_____ ☐ N/A	☐	Drop-through
Work zone must be marked on the ground and employees must be instructed to stay within the work area marked.	Select allowable location: ☐ Vertical face ☐ Floor ☐ Overhead	
Example Working Radius for Overhead and Leading-Edge Applications	**Refer to the user's manual for specifications**	**indicate pg. #**
Class 2 SRL required for Leading Edge Applications	MIN distance from fall edge: _____	
 	MIN distance from material edge: _____	
	MAX distance from fall edge if app: _____	
	Hole bore diameter: _____ Depth: _____	
	Length of anchor exposed: _____	
	Surface Mounted Anchors – if applicable	
	Refer to the user's manual for specifications	**indicate pg. #**
	Minimum # of fasteners required: _____	
	Minimum length of fasteners: _____	
	Does fastener need to be flush to anchor plate/surface: ☐ Y ☐ N	
	If no, what is the allowable gap: _____	
Images for reference only. Always refer to the user's manual for specifications.	**Horizonal Lifeline (HLL) Requirements – if applicable**	
	Refer to the user's manual for specifications	**indicate pg. #**
	Distance b/w stanchions (span): _____ ft.	
Lanyard/SRL Requirements	Max System Length: _____ft.	
Maximum length allowed:	System Capacity: ___ emp./span & ___total	
☐ ANSI Class 1 ☐ ANSI Class 2 (leading edge)	Deflection: _____ ft.	

Fall Clearance (information required with any use of Personal Fall Arrest Systems (PFAS))

Lanyard Length or SRL Free Fall Distance =		ft	**Examples for Illustrative Purposes Only:**
Lanyard extension (0 if N/A) =		ft	**Using a standard 6-foot lanyard** Lanyard length: 6 feet + Deceleration distance: 3.5 feet + Worker's height: 6 feet + Harness stretch: 1.5 ft + Safety factor: 2 feet = **Total fall clearance needed: 17.5 feet**
Deceleration distance =		ft	**Using a Self-Retracting Lifeline (SRL)** SRL deceleration distance Class 1 & 2: 3.5 feet + Free fall distance: 2 feet (see user's manual) + Worker's height: 6 feet + Harness stretch: 1.5 feet + Safety factor: 2 feet = **Total fall clearance needed: 15 feet**
Other factors (HLL sag, zorbit, etc. 0 if N/A) =		ft	
Harness stretch (assumed) * =		ft	
Person Height (assumed) * =		ft	
Safety Factor (assumed) * =		ft	
* *Increase necessary if manufacturer requires or site conditions require additional considerations =*		ft	
Fall Clearance needed from anchor point to lower level (SUM of above or per manufacturer) =		**ft**	

Are there any obstructions that an employee could swing into? ☐ Y (describe below) ☐ N

There are multiple calculators and references available online for determining necessary radius for dropped object zones such as: https://www.worksafe.vic.gov.au/falling-objects

Overhead/Dropped Object Hazard Protection Methods for Employees and/or Public (Attach users manuals for equipment)			
☐	Canopy protection	☐	Tool tethering
☐	Controlled Access Area/Drop Zone • Barrier method: _____ • Barrier Radius from edge: _____ ft • Signage states: _____	☐	Netting/protective barrier
		☐	Other:
Describe how you determined the barrier radius:			

Rescue Methods and Equipment Specific to this Plan – Please Explain (Attach users manuals for rescue equipment)			
On-Site Rescue Equipment Available- Employees must be rescued within 3-6 minutes of the fall.			
☐	Standard ladder (from below)	☐	Self-rescue harness
☐	Rescue ladder (from above)	☐	Designated rescue lift (MEWP)
☐	Descent device	☐	High angle rescue (suspended rescuer pick off technique)
☐	Trauma straps	☐	Other:

Safety information/instructions for employees installing anchors including allowable locations, number of devices, capacity limitations, SRL/lanyard requirements, etc.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ ☐ Original ☐ Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

How many people will be working on this scaffold? _____

Will any material pallets or equipment be loaded onto scaffold deck? ☐ No ☐ Yes, Describe:

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			

DETAILS – Check all fields that apply to elevated work

Check all the type of scaffold(s) selected by the competent person(s). **Attach User's Manuals or Stamped Engineered Drawings.**					
Scaffold Type		Self-Erected	3rd Party Scaffolding Company Erected	Designed following User's Manual	Designed by Professional Engineer
☐	Rolling/Mobile Frame (e.g. Bakers)				
☐	Motorized Scaffold (e.g. Power Snappy)				
☐	Modular (e.g. H or A- Frame and Brace)				
☐	System (e.g. cup, wedge, rosette)				
☐	Mast Climber				
☐	Ladder Jack				
☐	Tube and Coupler/Clamp				
☐	Suspended (e.g. swing stage)				
☐	Carpenter's Bracket Scaffold				
☐	Check here if cantilevered component(s) will be used.				
Are outriggers required at the base to support the scaffold due to design, height, or cantilever components? ☐ Y ☐ N					
Will scaffold be tied-back or anchored to a wall or other structure? ☐ Y ☐ N					
Will scaffolds be used for worker access to another level (stair tower or other)? ☐ Y ☐ N					
Name of 3rd Party Scaffolding Company if checked above:					

- Who is responsible for verifying final scaffold build meets engineered or user's manuals specifications?
  - Name:_____ Title/Employer: _____
- Is scaffold engineered for personal fall arrest for user? ☐ Y ☐ N or for lifting devices? ☐ Y ☐ N
  - If yes, all tie-off locations must have signage to indicate anchor point(s) and their capacity. PE drawings or section of the user's manual must be highlighted indicating the anchor point locations and that those locations are compliant. Attach Appendix C.7
- **Highlight all indications of capacity on the attached PE drawings and discuss information with users, to include safe loading of materials (total weight) and total number of allowable users over spans, bays, or other appropriate dimension(s) or in total.**

Will guardrails and/or midrails be removed to load materials onto scaffold while employees are on the deck? ☐ Y ☐ N

- If yes, anchor points have been identified on: ☐ scaffold ☐ structure ☐ davit arm ☐ MEWP ☐ none (STOP)

How will materials be loaded onto scaffold? ☐ Hand ☐ Reach fork/telehandler ☐ Crane (critical lift plan req.)

☐ Other: _____

DEN ROCIP Scaffold Requirements

- Scaffolds shall be inspected and documented by the competent person before each shift. Untagged scaffolds must not be used.
- Scaffolds shall be erected, moved, dismantled, or altered only under supervision and direction of a competent person.
- Supported scaffolds with a height to base width ratio of more than 4:1 must be restrained by guying, tying, bracing, or equivalent means.
- Overhead protection for employees on a scaffold is required if they are exposed to overhead hazards.
- Barricade the area beneath the scaffold and post "Working Overhead" signs in all approach directions.
- Materials beyond those used during one shift and debris will not be stored on scaffolding.
- Scaffold stamp must be visible on edge of plank.
- Scaffolds erected on stairways must use base plates, not castors.
- Working through handrails is prohibited.
- All wheels shall be locked while on top of a mobile or tower scaffold. Motorized scaffolds must be powered off or disengaged.

There are multiple calculators and references available online for determining necessary radius for dropped object zones such as: https://www.worksafe.vic.gov.au/falling-objects

Overhead/Dropped Object Hazard Protection Methods for Employees and/or Public (Attach users manuals for equipment)			
☐	Canopy protection	☐	Tool tethering
☐	Controlled Access Area/Drop Zone • Barrier method: _____ • Barrier Radius from edge: _____ ft • Signage states: _____	☐	Netting/protective barrier
		☐	Other:
Describe how you determined the barrier radius:			
☐	Maximum height for ungrouted masonry = _____ ft *A CAZ must be set up on the opposite side of the wall equal to height indicated plus 4 feet. In no case, will the CAZ be less than 4 feet.		

Understanding Capacity – Simple Spans

Safe Working Load (SWL) = Dead Load (DL) + (Safety Factor (SF) x Live Load (LL))

- **DL = weight of the scaffold (Including platforms, guardrails, and frames)**
- **SF = 4 (OSHA requirement)**
- **LL = weight of workers and materials (OHSA regulations assume each person weighs 250lbs)**

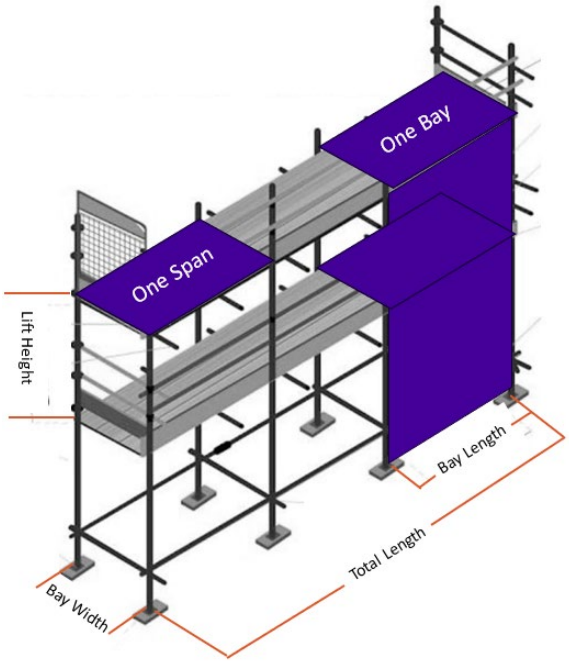
Solid Sawn Lumber and Fabricated Planks/Platforms		**Fabricated Planks/Platforms**	
☐	Light Duty: capable of supporting 25lbs per sq. ft. evenly distributed	☐	One-Person: 250 pounds placed at the center of the span (total 250 pounds)
☐	Medium Duty: capable of supporting 50lbs per sq. ft. evenly distributed)	☐	Two-Person: 250 pounds placed 18 inches to the left and right of the center of the span (total 500 pounds).
☐	Heavy Duty: capable of supporting 75lbs per sq. ft. evenly distributed*	☐	Three-Person: 250 pounds placed at the center of the span and 250 pounds placed 18 inches to the left and right of the center of the span (total 750 pounds)

* **Loads exceeding 75lbs per sq. ft. require a scaffold system specially designed by a professional engineer.**

Dimensions of Scaffold			
	Total Length (all bays)		Bay Length (span between uprights)
	Total Width		Bay Width
	Total Scaffold height		Lift Height (height between decks)
	Number of work platforms or decks per bay (stories)		

Live Load Capacity of Scaffold (People and/or Materials)			
	Not to Exceed for One Span (lbs.)		Not to Exceed for One Bay (lbs.)
For complex scaffolds, include drawings or additional sheets and instructions to ensure capacities aren't exceeded.			

Scaffold Access			
☐	Manufacturer attached fixed ladder	☐	Scaffold stairs
☐	Extension ladder	☐	Frame designed for climbing (ladder frame)
☐	Other:		



Note: This form is not exhaustive, nor does it provide full calculations necessary for a Contractor to figure out capacities or allowable Live Loads, and may not be suitable for all scaffolds. Attach additional information as necessary and/or follow manufacturer's instructions for performing capacity calculations.

For more information on how to calculate your scaffold capacity visit: OSHA 29 CFR 1926 Subpart L App A and OSHA 3150 "A Guide to Scaffold Use in the Construction Industry."

Please attach any additional planning documentation necessary for your workers.

Provide justification for Live Load via calculations or show where indicated in manufacturer specifications or scaffolding drawings.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers or additional drawings/sketches/designs that do not fit in the above space.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ ☐ Original ☐ Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – include specific building/roof locations:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training, resume, certification documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative.

Employee Name	Authorized	Unqualified	Entering Arc Flash Boundary	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			
	☐	☐	☐			

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under 1910.147.

Unqualified. Does not meet the definition of authorized. (NFPA 70e)

Supervisor responsible for ensuring all employees have applied their locks: _____

General Information – All fields must be completed.

EMPLOYERS – List all contractors, DEN Departments, Utilities (Xcel, etc.) who will work under this LOTO procedure. Name all entities that will work on the locked-out system or who will be in the vicinity of and potentially affected by hazardous energy. Attach addition page if necessary.		

LOTO Requirements

- **All personnel must apply their own lock for LOTO. Employees shall not rely on the Lock Outs of DEN Departments or other Contractors for their personal protection.**
- **If this is a multi-shift LOTO, employees must always verify prior to shift start that their lock is still attached.**
- Arc-Rated (AR) personal protective wear and ear plugs required for all personnel entering Arc Flash Boundary
- Observers outside the Arc Flash Boundary must wear ear plugs, and be away from the direct blast zone
- All AR PPE must be inspected/re-certified to meet the most stringent of manufacturer requirements or OSHA (typically 6-12mo.)

Energy, Equipment, and Isolation Points – All fields must be completed.

Electrical Systems Being Locked Out

Type	**# Isolation Pts.**	**Type**	**# Isolation Pts.**	*Energized work permit required for these energies ** Contact DEN Construction Safey
☐ Electrical		☐ Nuclear**		
☐ Solar*		☐ Capacitors/UPS/Battery Backup*		
☐ Wind*		☐ Other*		

Will multiple locks be placed on the energy isolating device? ☐ Yes (answer below) ☐ No

How will multiple locks on the isolating device be controlled? ☐ Lockbox ☐ Multi-lock hasp ☐ Other :_____

Energy

Voltage:		☐ AC ☐ DC ☐ Single Phase ☐ 3- Phase	Arc Flash Incident Energy	_____Cal/cm^2
Number of Points to test for de-energization _____			Min. Protection Required	_____CAT

Boundaries

Boundaries are marked on the ground: ☐ Yes ☐ No

Restricted Approach boundary	ft	in
Limited Approach Boundary	ft	in
Arc Flash Boundary	ft	in

Do these boundaries exceed the size room in which the de-energization will take place ☐ Yes* ☐ No

*Contact DEN Construction Safety for additional pre-planning coordination

Equipment

Will remote racking devices be used to energize? ☐ Yes ☐ No

Will shock insulating material be used? ☐ Yes ☐ No Voltage Rating _____

Digital Multimeter Information

Model:_____	Serial Number:_____	Calibration Date _____	CAT _____	Voltage Rating _____

Arc Blanket Information

☐ Yes ☐ No	Breakopen Threshold Performance_____	Max Arc Current Rating _____

List any additional specialty safety equipment required and explain how all equipment will be used in MOP:

Isolation Points
Room/BIM number the equipment and/or isolation point(s) locations:
Will this LOTO impact an area(s) that aren't in "close proximity", e.g. other side of a wall, different floor or room, etc.? ☐ Yes (explain below) ☐ No
Will locking out and de-energizing any of these isolation points affect other source(s) of energy? ☐ Yes * ☐ No *Common scenarios include: solenoid valves can need power to hold open or power to hold closed; so must be locked in the correct position to control hydraulic/ pneumatic pressure downstream; control valves; automated valve actuators; etc.*
* If yes, explain how those sources of energy and/or hazard(s) will be controlled:

Back Up Power	
Is there a backup power source that could re-energize the circuit(s)? ☐ Yes * ☐ No ☐ Unknown * This energy must be isolated from circuits being worked on	
How long does it take for the backup energy source to re-energize the circuit or will be the wait period? _____	
How long after backup would happen will you verify circuit(s) is de-energized? _____	
What circuit/system(s) could be back fed by energy or materials?	
☐ Rotating fan spins electric motor to generate electricity	☐ Induced Electrical Voltage
☐ Liquid in pipe spins pump and motor to generate electricity	☐ Pressure trapped behind valves
☐ Circuitry sharing neutrals and phases	☐ Other:
☐ Electrical current is overlaid from one cable to another	
Will locking out and de-energizing any of these isolation points affect other source(s) of energy?	
☐ Air compressors	☐ Automated valve actuators
☐ Control valves: Liquid level, Pressure level	☐ Boiler Feed water pump
☐ Solenoid valves can be power to hold open or power to hold closed and control hydraulic/ pneumatic pressure downstream	☐ Liquid sump control pump
	☐ Other (explain below)

Coordination and Communication
Have you coordinated with DEN PM to ensure all affected stakeholders are notified about de-energization (Shut Down Request)? ☐ Yes ☐ No (explain) _____
Is temporary re-energization necessary to test equipment/machines/circuits prior to full completion of scope, i.e. verifying correct direction of motor rotation? ☐ No ☐ Yes If yes, clearly explain steps in separate MOP for the task

Required Attachments and Activities:			
☐	Method of Procedure*(MOP)	☐	Coordination Meeting with DEN Safety*

Confirmation LOTO Coordination Walk has been completed, and work may commence. BOTH signatures required.

DEN Safety Name: _____ DEN Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

METHOD OF PROCEDURE REQUIREMENTS

** The questions below must be answered in your MOP to meet OSHA requirements, per OSHA CPL 02-00-147.

Generic level for all work:

A. Who is authorized to perform LOTO?
B. Who will notify affected employees of the application and removal of LOTO devices?
C. What method (e.g., lockout versus tagout, including, where appropriate, full employee protection measures) will be used for securing energy isolating devices?
D. What types of energy isolation (e.g., electric disconnects) and control methods will be employed in the facility?
E. How will energy control devices be removed and by whom?
F. If removal by others is contemplated by the employer in situations permitted under the LOTO standard, what are the specific procedural steps for the removal of the authorized employee's LOTO device by someone other than the person who applied the device?
G. How will the removal of control devices and re-energization be performed?
H. How will the implementation of these energy control procedures be supervised and enforced?
I. Where groups perform servicing or maintenance work, how will the group LOTO activities be performed and coordinated?
J. Where the servicing or maintenance exceeds a single shift or there is a personnel change, how will authorized employee responsibility be transferred during shift and personnel changes (e.g., job locks, supervisory locks, Operational Locks, etc.)?
K. Where contractor employees may be affected by hazardous energy, how will outside personnel (e.g., subcontractors, DEN, Airlines, etc.) be informed of energy control procedures?

Then specific level for the work at hand:

A. What equipment is being serviced/maintained and what is the scope of work?
B. What are the specific (types and magnitude) hazardous energy sources associated with the system and the specific method and sequence of activities required to control these hazards?
C. How is a safe and orderly shutdown of the system performed?
D. Where (if not readily apparent) and how does the isolation or blocking of energy occur?
E. How is stored energy in the system released?
F. Are there precautions (e.g., use of a test instrument) necessary to monitor for hazards associated with energy re-accumulation?
G. How do authorized employees test and verify that de-energization and isolation have been accomplished?
H. How are LOTO devices removed and what are the steps to re-energize the system?
I. How do employees safely test and position machine components?

DEN ROCIP Requires Contractors to implement a LOTO Isolation Point Log Sheet as part of their OSHA compliant program. A sample is below that can be expanded for use:

LOCK OUT TAG OUT ISOLATION POINT LOG SHEET					
Person Locking Out	Isolation Point#	Lock#	Date Installed	Date Removed	Removed By

ABSENT WORKER LOCK REMOVAL

If an employee is not present to remove their LOTO lock, and the lock needs to be removed, complete an Absent Employee Lock Removal Form. Attach the completed form to the back of the Isolation Point Log for compliant recordkeeping and Compliance Auditing. Must meet or exceed: 29 CFR 1910.147(e)(3), 29 CFR 1910.333(b)(2)(v)(C), ANSI Z 244.1, NFPA 70E Art. 120.

See Appendix C.25 for a sample Emergency Lock Removal Form for Absent Worker.

This page is guidance for completing Contractor Method of Procedure and does not need to be included as part of the submittal.

GENERAL INFORMATION **REMINDER- Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ □ Original □ Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – include specific building/roof locations:

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training, resume, certification documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative.

Employee Name	Authorized	Unqualified	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			
	☐	☐			

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under 1910.147.

Unqualified. Does not meet the definition of authorized. (NFPA 70e)

Supervisor responsible for ensuring all employees have applied their locks: _____

DETAILS – All fields must be completed.

EMPLOYERS – List all contractors, DEN Departments, Utilities (Xcel, etc.) who will work under this LOTO procedure. Name all entities that will work on the locked-out system or who will be in the vicinity of and potentially affected by hazardous energy. Attach addition page if necessary.		

All personnel must apply their own lock for LOTO. Employees shall not rely on the Lock Outs of DEN Departments or other Contractors for their personal protection.

Where multiple locks will be applied on an energy isolating device, the contractor will use: Lockbox Multi-lock hasp

Will this LOTO impact an area(s) outside the controlled project limits? (i.e. other side of wall, different floor, etc.) Y N

If yes, explain: _____

Isolation Details				
Pressures and Energy to be Isolated	**# of Isolation Pts**	**Location of Isolation Pts. (Room #s, BIM #s, Equipment #, etc.)**	**Will LOTO of these isolation points affect other source(s) of energy?**	**Is temporary re-energization necessary to test? (Yes-detail in MOP)**
Hydraulic/ pneumatic pressure				
Noise/Vibration				
Radioactive/nuclear				
Gravity				
Chemicals				
Mechanical				
Steam/Pressure				
Thermal/Temperature				
Compressed Gas				
Water				
Fire Suppression Systems				
Other:				

*** Will locking out and de-energizing any of these isolation points affect other source(s) of energy? (Check all affected)**	
Fuel line shutoff	Denver Water supply/drinking water
HVAC chiller water	Cooling tower water
Boiler Condensate return	Indicators for control: Liquid/Pressure level, temperature
De-Icing fluid line	Firefighting foam dispensing/fire sprinklers
Boiler Feed water	Compressed air system
Other- describe:	

Explain how those sources of energy and/or hazard(s) will be controlled:

What circuit/system(s) could be back fed by energy or materials?		
Cold created by released pressure	Heat trapped behind valve	Water supply behind water valve
Pressure trapped behind valves	Sewer line bladder plug	Storm drain bladder plug
Other- explain:		

	Isolation Methods or Make-Safe Procedures		
	Testing and purging hazardous chemicals in piping, tanks, and equipment		
	Removing glass that can fragment and cause injury during demolition		
	Qualified personnel shall air gap pipe, conduit, or ducting before utility is demolished		
	Opening Valves		Closing Valves
	Opening Circuits		Installing Blank Flange
	Double Block and Bleeding		Locks and Tags
	Releasing Energy		Blocking Machines
	Discharging Capacitors		Releasing Springs
	Waiting for Moving Parts to Stop		Opening Disconnects
	Other:		
Provide details in your Method of Procedure			

Special tools or equipment needed:		
Non-sparking tools	Heat resistant clothing	Acid suits
Cold protective clothing	Chemical protective clothing:	Spray shields/tarps/etc.
Mechanical lift/cribbing/Jack stands	Gas detector/Gas monitor	Breathing Air/Ventilation blowers
Vac Truck	Refrigerant capture tank	Other (list below)

Required Attachments and Activities:	
Method of Procedure** (MOP)	Coordination Meeting with DEN Safety*

Has the required site walk been coordinated with DEN safety for this scope of work? This walk may be coordinated in conjunction with any other required pre-work site safety walks.

Yes
No

This section will be completed on the Utility Damage Prevention Site Walk with DEN Safety.

Confirmation LOTO Coordination Walk has been completed, and work may commence. BOTH signatures are required.

DEN Safety Name: _____ DEN Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

METHOD OF PROCEDURE REQUIREMENTS

** The questions below must be answered in your MOP to meet OSHA requirements, per OSHA CPL 02-00-147.

Generic level for all work:

A. Who is authorized to perform LOTO?
B. Who will notify affected employees of the application and removal of LOTO devices?
C. What method (e.g., lockout versus tagout, including, where appropriate, full employee protection measures) will be used for securing energy isolating devices?
D. What types of energy isolation (e.g., electric disconnects) and control methods will be employed in the facility?
E. How will energy control devices be removed and by whom?
F. If removal by others is contemplated by the employer in situations permitted under the LOTO standard, what are the specific procedural steps for the removal of the authorized employee's LOTO device by someone other than the person who applied the device?
G. How will the removal of control devices and re-energization be performed?
H. How will the implementation of these energy control procedures be supervised and enforced?
I. Where groups perform servicing or maintenance work, how will the group LOTO activities be performed and coordinated?
J. Where the servicing or maintenance exceeds a single shift or there is a personnel change, how will authorized employee responsibility be transferred during shift and personnel changes (e.g., job locks, supervisory locks, Operational Locks, etc.)?
K. Where contractor employees may be affected by hazardous energy, how will outside personnel (e.g., subcontractors, DEN, Airlines, etc.) be informed of energy control procedures?

Then specific level for the work at hand:

A. What equipment is being serviced/maintained and what is the scope of work?
B. What are the specific (types and magnitude) hazardous energy sources associated with the system and the specific method and sequence of activities required to control these hazards?
C. How is a safe and orderly shutdown of the system performed?
D. Where (if not readily apparent) and how does the isolation or blocking of energy occur?
E. How is stored energy in the system released?
F. Are there precautions (e.g., use of a test instrument) necessary to monitor for hazards associated with energy re-accumulation?
G. How do authorized employees test and verify that de-energization and isolation have been accomplished?
H. How are LOTO devices removed and what are the steps to re-energize the system?
I. How do employees safely test and position machine components?

DEN ROCIP Requires Contractors to implement a LOTO Isolation Point Log Sheet as part of their OSHA compliant program. A sample is below that can be expanded for use:

LOCK OUT TAG OUT ISOLATION POINT LOG SHEET					
Person Locking Out	Isolation Point#	Lock#	Date Installed	Date Removed	Removed By

ABSENT WORKER LOCK REMOVAL

If an employee is not present to remove their LOTO lock, and the lock needs to be removed, complete an Absent Employee Lock Removal Form. Attach the completed form to the back of the Isolation Point Log for compliant recordkeeping and Compliance Auditing. Must meet or exceed: 1910.147(e)(3), 1910.333(b)(2)(v)(C), ANSI Z 244.1, NFPA 70E Art. 120.

See Appendix C.26 for a sample Emergency Lock Removal Form for Absent Worker.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ ☐ Original ☐ Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope- Note: These plans must be specific to the scope, area, and crews performing the work.
If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature
Foreman/Supt.:							
	☐	☐	☐	☐			
	☐	☐	☐	☐			
Equipment Operators:							
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
Spotters:							
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			
	☐	☐	☐	☐			

LOCATE METHODS

Check below to confirm all methods below are complete. Documentation for each must be attached.

☐ 811/DEN Locates ☐ As-Builts/Shops/Design ☐ 3rd Party Locate ☐ Positive ID through Potholing/Hand

Utility Damage Prevention Requirements

- **If during excavation activities, any unmarked, mismarked, and/or unidentified utilities are found, or if utilities are damaged, cease operation and notify 811, DEN, and the Contractor Safety Representative.**
- Pothole locations must be staked with depths marked. Where excavation/disturbance/penetration is within 3ft, the top of the stake must be painted red to provide warning to the operator.
- Document/Memorialize all locate marks and proposed excavation area with pictures, showing the area to give context.
- Video, drawings, and notes may be useful.
- If removing concrete or asphalt layers, perform 3rd party locates after removal for soil and base removal.
- Superintendent and CSR must walk site again and review this plan when operator or spotters change.

Check the utilities present or marked within 5ft of white-lined disturbance area as identified by the following:

Contractor has compared drawing documents to both 811 and GPR and confirms:				**Utility**	Identified on Drawings	Positive Response by 811 Locate	Identified by 3rd Party Locate	Verified by Pothole or Hand Dig	Abandoned / Future Use
Aligns	Loc. off by >18"	Un-ID'd Found	Cannot Verify						
☐	☐	☐	☐	Gas	☐	☐	☐	☐	☐
☐	☐	☐	☐	Electrical	☐	☐	☐	☐	☐
☐	☐	☐	☐	Jet Fuel	☐	☐	☐	☐	☐
☐	☐	☐	☐	FAA Fiber	☐	☐	☐	☐	☐
☐	☐	☐	☐	HP Gas	☐	☐	☐	☐	☐
☐	☐	☐	☐	Storm	☐	☐	☐	☐	☐
☐	☐	☐	☐	Glycol	☐	☐	☐	☐	☐
☐	☐	☐	☐	Comm	☐	☐	☐	☐	☐
☐	☐	☐	☐	Sanitary	☐	☐	☐	☐	☐
☐	☐	☐	☐	Bldg. Ground Grid	☐	☐	☐	☐	☐
☐	☐	☐	☐	In-pavement Lighting	☐	☐	☐	☐	☐
☐	☐	☐	☐	Water	☐	☐	☐	☐	☐
☐	☐	☐	☐	Unknown	☐	☐	☐	☐	☐
Other – Explain:									

Does a utility company representative need to be present during excavation/disturbance: ☐ Yes ☐ No

Prior to excavation/panel removal, utility must be: ☐ Disconnected ☐ Depowered ☐ Removed ☐ N/A
Explain: _____

Surface Disturbance Penetration Type			
☐	Mass Excavation	☐	Asphalt Removal
☐	Trenching	☐	Base Reconditioning
☐	Concrete Panel Removal	☐	Driving Posts/Poles/Stakes/Boring

Methods to be Used for Concrete/Asphalt Disturbance or Penetration (Attach Appendix xxx Silica/Slurry Control Plan)									
☐	Saw	☐	Chipping	☐	Drilling	☐	Coring	☐	Milling
☐	Other: Explain-								

Methods to be Used for Earth Disturbance or Penetration			
☐	Heavy Equipment (attach Appendix C.23 – HE list)	☐	Vacuum Excavation
☐	Vertical Boring	☐	Hand Digging
☐	Horizontal Directional Boring	☐	Hand or Mechanical Driving
☐	Other- Explain:		

Preservation and Utility Marking Refresh
Are utilities clearly marked and preserved: ☐ Yes ☐ No
Next Utility Locate Refresh is Due (date):

Third Party Locate Information – Attach Technician(s) Credentials/Training Documents			
Company Name			
Locate Tech Name(s)			
Make/Model of Equipment			
Frequency used		Effective Depth of Scan	ft. in.

Has the required site walk been coordinated with DEN safety for this scope of work?

☐ Yes

☐ No

This section will be completed on the Utility Damage Prevention Site Walk with DEN Safety.

Confirmation Utility Damage Prevention Site Walk has been completed, and work may commence. BOTH signatures required.

DEN Safety Name: _____ DEN Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

New personnel required new safety site walk/plan review. Date: _____

GC Safety Name: _____ GC Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

FOR FIELD USE – INDICATE DATES THAT UTILITY MARKING REFRESH HAS BEEN COMPLETED					
Date of Utility Refresh Request *Attach new Positive Responses to this plan	**Initial Column for Reason Utility Locates need to be Refreshed:** 30 Day Expiration	Weather removed markings	Work activities removed markings	Unknown Found	Other
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
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	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

GENERAL INFORMATION

Call 303-342-4211 for all emergencies.

Project: ____ General Contractor: _____________________________________

Subcontractor(s): ____

Date of anticipated Work Start: ___________ Submittal Date:___________ ☐ Original ☐ Rev- Previous Sub #_________

Person Completing this Form: __________________________________ Employer: _______________________________________

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope- Note: These plans must be specific to the scope, area, and crews performing the work.

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – For XRAY/GPR technician attach training, resume, certification documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative.

For employee coring and/or penetrating attach resume and years of experience.

	Required on pre-work walk							
Employee Name	Superintendent	Foreman	GC Safety	Employer cutting, coring, penetrating	Locate Tech	Employer	Name of Employer Rep. Making Designation that employee's have been trained to meet regulatory and contract standards.	Employer Rep. Signature
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐			

DETAILS – All fields must be completed.

Utilities or Structures present **Isolation/LOTO is required where utilities are being rerouted or removed. Attach Appendix xxx and/or xxx with this plan.**					
Utilities/Structure in area:		Protect	Remove	Reroute	Utility description (e.g. 4-inch gas service to boiler)
☐	Electric				
☐	Gas				
☐	Steam				
☐	Jet Fuel				
☐	Water				
☐	Storm/Sewer				
☐	Communication				
☐	Security/SSI				
☐	Life safety/Fire Protection				
☐	Ducting				
☐	PT Cable (attach Drawings)				
☐	Rebar (attach Drawings)				
☐	Radio Wave				
☐	Underground Tank				
☐	Other:				

Type of Structure or Surface Being Penetrated/Cut/Demolished							
☐	Security Wall	☐	Metal Security wall	☐	CMU	☐	Metal Stud Drywall
☐	Drywall	☐	Concrete Slab	☐	Columns	☐	Beams
☐	Other- Explain:						

Have you Performed a visual inspection of wall cavity to be penetrated? ☐ N/A ☐ Yes ☐ No – explain:

_____

Have you Performed a visual inspection of the underside of slab to be penetrated? ☐ N/A ☐ Yes ☐ No – explain:

_____

Have all utilities and/or structures been clearly marked with flagging or on surface to be penetrated? ☐ Yes ☐ No

Utilities in Demolition/Reroute Areas - Utilities must be marked with either tape, flagging, or paint every 25 ft, and at least twice within the same room, signifying their current status whether they are live or protected utilities (red), when it is safe for demolition (green) or if they are being rerouted (blue). Utility markings must be in place for review during the demolition walk.

Method of surface penetration – check all that apply or ☐ N/A									
	Cutting		Chipping		Coring		Drilling		Pneumatic
	Other- Explain:								

Will this work have any potential for Public or Adjacent Worker exposures? ☐ Yes ☐ No

Complete the information below for identification methods used.			
Date	**Type of Document**	**Source**	**Year and Revision number**
	As-Builts		
	Shop Drawings		
	Electrical Single-Line Diagrams		
Date	**Type of Scan/Observation***	**Company**	**Make/Model/Frequency if applicable**
	X-Ray		
	Ground Penetrating Radar		
	Electromagnec		
	Visual- Explain:		
	Other- Explain:		

Technician Information – Attach resume/credentials/training documents			
Technician Name		Company	
Technician Name		Company	

***Attach Drawings/Scans/Xray images and photos of locate markings on surface layer being penetrated for employee reference.**

Has the required site walk been coordinated with DEN safety for this scope of work? This walk may be coordinated in conjunction with any other required pre-work site safety walks.

☐ Yes

☐ No

This section will be completed on the Utility Damage Prevention Site Walk with DEN Safety.

Confirmation Pre-Demolition Walk has been completed, and work may commence. BOTH signatures required.

DEN Safety Name: _____ DEN Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

Pre-Demolition Walk and plan review required with new personnel. Date: _____

GC Safety Name: _____ GC Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

Pre-Demolition Walk and plan review required with new personnel. Date: _____

GC Safety Name: _____ GC Safety Signature: _____

GC Supt. Name: _____ GC Supt. Signature: _____

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope including location(s):

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – All fields must be completed.

Provide accepted Utility Damage Prevention Plan submittal #: _____ Were utilities identified in trench dig area? Y N
Trenching/Excavation cannot begin prior to acceptance of UDP plan. Both plans must be printed, reviewed, signed, and on site with crew performing the work.

Width _____ Length _____ Depth _____ (min-max if variable)

Indicate below the protective systems that have been selected by the competent person(s) – Check all that apply.		
	Systems for Trenches less than 20 feet	***System Information/User's Manuals must be attached for worker reference.***
	Slope (1 ½: 1)	Per 1926 Subpart P Appendix B
	Timber Shoring	Per 1926 Subpart P Appendix C (attach for employee reference)
	Aluminum Hydraulic Shoring Waler System	Per 1926 Subpart P Appendix D Table D1.4 (attach for employee reference)
	Aluminum Hydraulic Shoring	Attach User's Manual & Tabulated Data
	Trench Shields (Trench Box)	Attach User's Manual & Tabulated Data
	Engineered System (designed by PE)	Attach copy of design with Professional Engineer stamp and signature
	Systems for Trenches greater than 20 feet	
	Manufactured System (Tabulated Data)	Attach User's Manual & Tabulated Data
	Engineered System (designed by PE)	Attach design with Professional Engineer (PE) stamp and signature
	End Protection for the Trench	
	Flared Sloping (1 ½: 1)	Per 1926 Subpart P Appendix B
	Manufactured System (Tabbed Data)	Attach User's Manual
	Engineered System (designed by PE)	Attach design with Professional Engineer (PE) stamp and signature

Maximum allowable gap between the trench wall and trench shield: _____ inches Found on page# _____ of the User's Manual
If the manufacturer does not indicate, then shield must be backfilled to prevent movement (mark 0 above.)

Trench Access (check all that apply)			
	Access Ramp (Gangway) with Guardrail		Protected Walkable Slope (minimum walkable slope is 1:3 per OSHA 1926.451.e(5)ii)
	Ladders with Walk-Through Gate		Manufacturer Access System (must have fall prevention system at access point)
	Stairs with access platform		Other- explain:

Trench Edge Protection for Trenches over 6 ft (attach User's Manuals for guardrails)			
	Non-Guardrail Barriers 6 ft from edge or more		Danger Tape and Signs 6 ft from edge or more (landside)
	Guardrail attached to Trench Shield (fully backfill to shield)		Berms and Signs: 'Fall Hazard, Do Not Enter' signs spaced every 25 ft, berms must be the greater of 30 in. or ½ the tire height of largest piece of equipment. (Only allowed on large, mass excavation sites.)
	Portable Guardrail System (e.g. Garlock)		
	Red Chain and Signs 6ft from edge or more (airside)		
	Other- Explain:		
	Workers must approach leading edge (if checked, Elevated Exposure Specific Plan must also be completed.)		

Equipment/Tools that will be located within surcharge load area of excavation (check all that apply)							
	Vehicles/Trucks		Crane		Welding Equipment		Compaction Equipment
	Heavy Equipment		Generator		Live Traffic		RCP/Pipe
	Other: Explain-						
Does your protective system provide limitations to loading the surcharge area? Y- explain below: N							

Everything must be kept more than 2 ft from the edge of the trench and secured to prevent rolling or entering the trench.
Surcharge area includes at least the lateral distance equal to at least the depth of the trench, or as determined by qualified personnel.

Water Infiltration Anticipated (attach User's Manuals for all dewatering equipment)							
☐	Groundwater	☐	Rainwater	☐	Utilities	☐	Other Source:

Hazardous Atmosphere – check all that contractor may introduce or that has potential to exist:									
☐	Welding	☐	Epoxy	☐	Nearby equipment/generator	☐	Benzene/hydrocarbons	☐	none
☐	Other- explain:								
Atmospheric Protective Measures (attach User's Manuals for all equipment for employee reference)									
☐	Air Monitoring (4-Gas)			☐	Ventilation (attach Appendix C.18 – Ventilation Plan)				
☐	Air Monitoring (PID- Hydrocarbons/Benzene)			☐	Respiratory Protection (attach Appendix C.19 – Respiratory Protection Plan)				
☐	Other- explain:								

Other Required Attachments (check, confirming all are attached for employee reference)			
☐	Load Chart for Excavator(s) or equipment that will place protective systems	☐	Contractor's Daily Trench Inspection Form to be completed by competent person
☐	Job Hazard Analysis	☐	Other:

Do any utilities cross the trench? ☐ Y ☐ N Do they need to be supported? ☐ Y ☐ N

Does your selected protective system have components to accommodate the crossing and still protect the trench? ☐ Y ☐ N

If you must accommodate crossing structures or utilities, please describe the components to be used that will allow openings or clearances necessary (e.g. high clearance arches or other engineered or manufacturer components). You may also highlight components in the attached user's manual and indicate that below.

Include drawing, sketch or diagram over satellite image of the excavation/trench. Include access points, surface encumbrances, utility crossings, and perimeter protection. Include clearance distances of equipment or other surcharge loads from trench edge.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers or additional drawings/sketches/designs that do not fit in the above space.

GENERAL INFORMATION

Call 303-342-4211 for all emergencies

Project: ______________________________ General Contractor: ______________________________

Subcontractor(s): ____

Date of anticipated Work Start: __________ Submittal Date: __________ ☐ Original ☐ Rev- Previous Sub # __________

Person Completing this Form: ________________________ Employer: ______________________________

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – Describe the confined space, the location, and the work taking place in the confined space:
If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

The employer has trained the employee for the following roles per OSHA Regulations (attach records):

Employee Name	Competent	Authorized	Entry Supervisor	Entrant	Attendant	Rescue Team	CPR/First Aid	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
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	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			
	☐	☐	☐	☐	☐	☐	☐			

***Confined space* means a space that:**
(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and (3) Is not designed for continuous employee occupancy.

All confined spaces on DEN property are considered permit-required confined spaces, unless the contractor requests a variance in writing detailing their assessment of the space and determination the space may be downgraded.

Check all that apply:

☐ **Contractor has current DFD Confined Space Permit (attach)** **Expiration Date: _____**
☐ **Contractor's Daily Confined Space Entry Permit meets ROCIP Safety Manual Section 10.16.1 (attach)**
☐ **Multiple employers are entering the space concurrently and this plan does NOT address all employer's work.**

Methods to Prevent Unauthorized Entry – check all that apply							
☐	Barricades	☐	Signs	☐	Attendant	☐	Locks at Entry
☐	Meeting w/ Employees	☐	Other:				

Hazards that are or may be present. Address in Job Hazard Analysis or other Exposure Specific Plans and attach.					
☐	Oxygen Deficient <19.5%	☐	Toxic Gases, Vapors when >PEL	☐	Flammable Gases, Vapors when >10% LEL
☐	Oxygen Enriched >23.5%	☐	Hot Work	☐	Airborne Combustible dust
☐	Chemical Hazards	☐	Engulfment/Entrapment Hazard	☐	Respiratory Hazards
☐	Fall Hazards	☐	Noise/Vibration	☐	Oxygen Displacement
☐	Egress Hazard	☐	Heat/Cold Hazards	☐	Silica (e.g. abrasive blasting)
☐	Insufficient Lighting	☐	Animal/Insect Hazards	☐	Unguarded Equipment/Mechanical Hazards
☐	Electrical Hazards	☐	Vehicle or Generator Exhaust	☐	Obstructions (configuration)
☐	Skin Hazards	☐	Introducing chemicals (list - attach SDS):		
☐	Benzene/hydrocarbons	☐	Other- Explain:		

Safety Controls and Emergency Rescue Equipment – check all that apply **(*attach User's Manuals)**					
☐	Other Rescue Equipment*	☐	Tripod System*	☐	Non-sparking/Intrinsically safe tools*
☐	Safety Harness and retrieval line	☐	Davit Arm*	☐	Mechanical retrieval line system*
☐	Respirator (submit Appendix C.19)	☐	Stokes Basket	☐	Supplied Air Respirator (submit Appendix C.19)
☐	Ventilation (submit Appendix C.18)	☐	GFCI	☐	LOTO/De-energization/Isolation (submit Appendix C.9)
☐	Hearing Protection	☐	Lighting	☐	PID Monitor- Hydrocarbons/Benzene*
☐	4-gas monitor with pump/hose*	☐	Boatswain	☐	Other monitor*:
☐	Other:				
Minimum response time of air monitor sensor: _____seconds. **Hose length required for air monitor:** _____ feet.					

Entry Types– check all that apply				**Dimension of Opening**: _____x_____inches	
☐	Top entry - 24" or less	☐	Side entry - 24" or less	☐	Bottom entry - 24" or less
☐	Top entry - greater than 24"	☐	Side entry - greater than 24"	☐	Bottom entry - greater than 24"
☐	Elevated – no platform	☐	Elevated – small rest platform	☐	Elevated – large working platform
☐	Fixed ladder entry	☐	Portable ladder entry	☐	Lowering by winch and boatswain or harness
☐	Other:				

Safety and Emergency Rescue – check all that apply					
☐	Rescue team on site	☐	Non-entry rescue will be performed	☐	In-house personnel
☐	Rescue team OFF site	☐	Entry rescue will be performed	☐	3rd-party rescue personnel**
☐	Check here that all personnel have had hands on training for this type of rescue and the equipment that will be used.				
Authorized representative verifying employees had hands on training:					

**** If the Contractor is using a 3rd party to perform rescue they must attach a written agreement between the 3rd party agency and the Contractor and will obtain written verification from the 3rd party prior to each entry that they are ready to respond.**

Describe Emergency Rescue Procedures (step by step) – attach JHA/MOP for work in the confined space

Confined Space Requirements

- All employees must have training to meet the OSHA requirements. **STOP and request training if you have not been trained to the following:**
    - The employer must provide training to ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of confined space duties. This training must result in an understanding of the hazards in the permit space and the methods used to isolate, control or in other ways protect employees from these hazards, and for those employees not authorized to perform entry rescues, in the dangers of attempting such rescues.
- The Contractor's rescue personnel must have extensive training. No employee is authorized to enter a space to rescue an entrant unless he or she has had extensive training in personal protective and rescue equipment. This includes actual practice in making simulated rescues and CPR/first aid.
- Contractor Daily Confined Space Entry Permits must be completed prior to each shift.
- All equipment must be inspected and/or tested per manufacturer requirements. At a minimum, equipment must be inspected prior to each shift and documented on the Contractor's Confined Space daily entry permit.
- Air must be monitored prior to entry and continually during entry. Results must be documented on the Contractor's Daily Confined Space Permit for the initial entry and at least every 2 hours, or at completion where entry is less than 2 hours.
- A trained attendant may not enter a space to make a rescue until another attendant has arrived.
- **For entries into permit required confined spaces lasting four (4) hours or more, or for entries into the Utility Tunnel, the DEN Denver Fire Department Red Chiefs must be informed.** The following emails may change and are provided here for Contractor's convenience only:
    - Ryan Nuanes: Red Chief (A) Ryan.Nuanes@flydenver.com
    - Randy Stewart: Red Chief (B) Randy.Stewart@flydenver.com
    - Mark Allen: Red Chief (C) Mark.Allen@flydenver.com
    - Donn Bower: ARFF Training Chief Donn.Bower@flydenver.com
    - Alex Paez: Division Chief Alberto.Paez@flydenver.com
- Each contractor must have their own DFD confined space permit and it must remain valid for the duration of the project and be posted at or near the confined space. Electronic copies are not acceptable.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers

Confined Space Name/ID: _____ Location:_____

Reason for Entry/Work Scope

Multiple Employers Entering Concurrently? ☐ Yes ☐ No	Names of Other Employers Involved:
Joint Safety Briefing Conducted? Yes No ☐ N/A	Date and Time of Briefing:
Lead Facilitator Name:	Lead Contractor:
Description of Coordination Measures:	

Permit must be posted near entry point and is valid for one shift only. Keep permit on file for one year. A valid Denver Fire Department Confined Space Permit is also required and be posted near entry point.

Entry Supervisor: Print Name: _____ Signature: _____
Entry Date: _____ Permit Start Time: _____
By signing this document, I certify all conditions and actions necessary for safe entry have been performed and entry is authorized.

Entry Supervisor: Print Name: _____ Signature: _____
Permit Cancellation Time:_____
By signing, I certify all employees have safely exited the confined space and it is secure from unauthorized entry.

Hazard Identification Identify potential or known hazards in the confined space							
	Oxygen deficiency		Fall hazards		Engulfment hazard		Animal/insects
	Oxygen enrichment		Falling objects		Mechanical hazards		Slippery/uneven surfaces
	Flammable gases/vapors		Noise		Electrical hazards		Heat/cold
	Toxic gases/vapors		Limited visibility		Hot work		Skin Hazards
	Combustible dust		Other:				
	Check here that all hazards above adequately controlled – describe controls below						

Isolation and Hazard Control Measures Isolation Methods Used (check all that apply):	
☐	Isolation/LOTO required*
☐	Ventilation required* Ventilation must be in place for _____ min prior to entry
☐	Temporary lighting will be used*
☐	Task specific PPE required: Respirator Hearing Protection Tyvek Supplied Air
☐	Equipment and tools must be non-sparking or intrinsically safe
☐	Other:

***Verification completed by**
Name:_____ Signature:_____ Date:_____

Safety and Emergency Rescue Equipment On-Site & Assembled for Immediate Use					
☐	Air monitor(s)	☐	Mechanical retrieval system(s)	☐	Safety harness and lifeline or retrieval line
☐	Communication (radios/phones)	☐	Rescue Stand-by personnel on-site	☐	CPR trained person available
☐	Other:				

Atmospheric Information Acceptable atmospheric entry conditions must meet the limits below. Test every 2 hours unless entrant wears continuous monitor.								
	Time	**O^2 19.5-23.5%**	**LEL <10%**	**CO ≤50 ppm**	**H^2S ≤10%**	**Benzene ≤1ppm PEL ≤15ppm STEL**	**Other:**	**Initials**
Depth	**Pre-entry/Initial Air Monitor Readings**							
0-4 ft								
4-8 ft								
8-12 ft								
12-16 ft								
Depth	**Pre-entry Air Monitor Readings Following Ventilation** N/A							
0-4 ft								
4-8 ft								
8-12 ft								
12-16 ft								
Time	**Periodic Air Monitor Readings (Continuous monitoring required – document results every 2 hours minimum)**							

I have been trained for the confined space job duties assigned and agree with the conditions listed on this permit:							
Employee Name	Competent	Authorized	Entrant	Attendant	Rescue Team	CPR/First Aid	Employee Signature
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	
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	☐	☐	☐	☐	☐	☐	
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GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope including location(s):

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

Appendix C.16
Silica Exposure and Slurry Control Plan

DETAILS – All fields must be completed.

The materials listed below contain silica. Select all the materials that pertain to your scope of work – Check all that apply.							
☐	Abrasive Blasting Media	☐	Asphalt	☐	Brick	☐	Concrete
☐	Concrete Block	☐	Drywall	☐	Fiber Cement Products	☐	Grout
☐	Gunite / Shotcrete	☐	Mortar	☐	Paints Containing Silica	☐	Plaster
☐	Refractory Mortar/Castable	☐	Rock	☐	Roof Tile (Concrete)	☐	Sand
☐	Soil	☐	Stone	☐	Stucco / EIFS	☐	Terrazzo
☐	Tile (Clay and Ceramic)	☐	Other:	☐	Other:	☐	Other:
Indicate below the tasks involving exposure to Respirable Crystalline Silica selected by the competent person(s) – Check all that apply.							
☐	Drilling / Coring	☐	Earthmoving	☐	Grinding	☐	Jackhammering
☐	Milling	☐	Mixing / Pouring	☐	Polishing	☐	Sacking / Patching
☐	Sanding	☐	Scabbling	☐	Scarifying	☐	Scraping
☐	Sweeping / Cleaning	☐	Well Mixing / Pumping	☐	Other:	☐	Other:

Respiratory Protection – Check all that apply. Only NIOSH approved and certified models are acceptable. **Attach Appendix C.19 – Respiratory Protection Plan**			
☐	Elastomeric Half Facepiece Respirators	☐	Elastomeric Full Facepiece Respirators
☐	Filter Facepiece Respirators	☐	Powered Air-Purifying Respirators (PAPRs)
☐	Supplied-Air Respirators	☐	Self-Contained Breathing Apparatus (SCBAs)
☐	Combination Respirators	☐	Other:

Other Personal Protective Equipment – Check all that apply.			
☐	Faceshield	☐	Chemical Resistant Gloves
☐	Spoggles/Goggles	☐	Tyvek Suits
☐	Hearing Protection	☐	Rubber boots (taped)
☐	Other:		

Slurry Control – Description of equipment and processes to be used by employees to vacuum or wet clean work areas and equipment. Please Explain:

Post Work Cleaning:

Are vacuum cleaning stations and/or changing facilities used to clean off employees at the end of work, before breaks, or before transportation in vehicles? Y N

If no, how are your employees protected from the dust during breaks and at the end of the day? Please explain:

***The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica.

Exposure Controls – Describe portion of OSHA 1926.1153 to be utilized OR provide air monitoring results to determine silica PEL generated.

Can Public or Adjacent workers be exposed or potentially exposed to silica? (unsecured doors, barriers, proximity, etc.) **Y – attach Appendix C.16** **N**

OSHA 1926.1153 Table 1 (check all that apply) Attach safety information/instructions from User's Manuals for tools being used.				
Equipment/Task		**Engineering and Work Practice Control Methods**	**Required Respiratory Protection and Minimum Assigned Protection Factor (APF)**	
			Less than 4 hours/shift	**More than 4 hours/shift**
	i. Stationary Masonry Saw  	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	ii. Handheld Power Saw (any blade diameter)  	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • When used outdoors When used indoors or in an enclosed area	None APF 10	APF 10 APF 10
	iii. Handheld Power Saws for Cutting Fiber-Cement Board (with blade diameter of 8 inches or less) 	For tasks performed outdoors only: Use saw equipped with commercially available dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency	None	None

	iv. Walk-Behind Saws 	Use saw equipped with integrated water delivery system that continuously fees water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: -When used outdoors -When used indoors or in an enclosed area	None APF 10	None APF 10
	v. Drivable Saws 	For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously fees water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	vi. Rig-mounted core saws or drills 	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
	vii. Handheld and Stand-Mounted Drills (including impact and rotary hammer drills)  	Use drill equipped with commercially available shroud or cowling with dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism Use a HEPA-filtered vacuum when cleaning holes.	None	None
	viii. Dowel Drilling Rigs for Concrete 	For tasks performed outdoors only: Use shroud around dill bit with a dust collections system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
	ix. Vehicle-Mounted Drilling Rigs for Rock and Concrete  	Use dust collections system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. **OR** Operate from within an enclosed cab and use water for dust suppression on the drill bit.	None None	None None

	x. Jackhammers and Handheld Powered Chipping Tools  	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact: -When used outdoors -When used indoors or in an enclosed area **OR** Use tool equipped with commercially available shroud and dust collections system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism: -When used outdoors -When used indoors or in an enclosed area	None APF 10 None APF 10	APF 10 APF 10 APF 10 APF 10
	xi. Handheld Grinders for Mortar Removal (i.e., tuckpointing) 	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (CFM) or greater airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
	xii. Handheld Grinders for Uses Other Than Mortar Removal 	Use grinder equipped with integrated water delivery system that continuously fees water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. **OR** Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide 25 cubic feet per minute (CFM) or greater airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism: -When used outdoors -When used indoors or in an enclosed area	None None	None APF 10

	xiii. Walk-Behind Milling Machines and Floor Grinders  	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. **OR** Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None None	None None
	xiv. Small Drivable Milling Machines (less than half-lane) 	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
	xv. Large Drivable Milling Machines (half-lane and larger) 	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. **OR** Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None None None	None None None
	xvi. Crushing Machines 	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/sizing or vibrating components, and discharge points). Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None

	xvii. Heavy Equipment and Utility Vehicles used to abrade or fracture silica-containing materials (e.g., Hoe-Ramming, Rock Ripping) or used during demolition activities involving silica-containing materials. 	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None None	None None
	xviii. Heavy Equipment and Utility Vehicles for tasks such as grading and excavating but not including: Demolishing, Abrading, or Fracturing Silica-Containing Materials 	Apply water and/or dust suppressants as necessary to minimize dust emissions. **OR** When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None None	None None

Alternate Exposure Control Methods – **For tasks not listed in Table 1, add a task below.** **Exposure Assessment below must be completed for all tasks listed in this section.**

Task: Please attach user's manuals for equipment you plan to use.
Work Practices: **Please Explain**
Control Measures: **Please Explain**
Exposure Assessment: **The contractor shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica.**
• The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica. **Performance Option** **Scheduled Monitoring Option** • **Attach air monitoring results.** • Where respirator use is required, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

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Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope including location(s):

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – All fields must be completed.

Engineering Survey of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Include any adjacent occupied structure when applicable. N/A			
Date Performed		Completed by	
Date Performed		Completed by	

Protective measures should always be determined by considering the hierarchy of safety controls starting with eliminating the hazard or substituting for something less hazardous, then engineering and administrative controls and PPE last.

Assessment of Hazards (including hazardous materials) and Controls
Gravity – falling objects collapsing structures slips trips falls other
Describe:
Hazard Controls:
Motion – vehicles people heavy equipment swinging loads other
Describe:
Hazard Controls:
Mechanical – rotating equipment compressed springs drive belts conveyors motors post-tension cables other
Describe:
Hazard Controls:
Electrical – static charge energized equipment wiring (electrical or communication) batteries cords other
Describe:
Hazard Controls:
Pressure – pipelines compressed cylinders vessels hoses pneumatic equipment hydraulic equipment other
Describe:
Hazard Controls:
Sound/Vibration – loud machinery impact noise high pressure release other
Describe:
Hazard Controls:
Radiation – welding lasers radio waves test equipment x-rays dim light other
Describe:
Hazard Controls:
Biological – rodents bacteria viruses insects blood borne pathogens poisonous or noxious plants other
Describe:
Hazard Controls:
Chemical – reactive substances carcinogens toxins corrosives fumes dusts gases jet fuel other
Describe:
Hazard Controls:
Temperature – flames steam heat cold snow ice high humidity cryogenic other
Describe:
Hazard Controls:
Additional Considerations -

Health Hazard Assessment (If substances cannot be easily determined, samples shall be taken and analyzed by a qualified person prior to demolition)			
	Toxic Chemicals:		Asbestos:
	Gases/Benzene:		Radiation:
	Biological/Animal:		Silica (must include Appendix C.16 Silica Plan):
	Dusts:		Fumes:
	Vapors:		Mold:
	Lead:		Mercury:
	Other- Explain:		

Are there Utilities in the area that will be protected, rerouted, or removed? Yes (attach Appendix C.11 or C.12) No

Where utilities are present in the demolition area that are being rerouted, demolished, or protected but workers have the potential to damage them, a site walk to review the plan must be conducted. The walk will be scheduled and confirmed under the attached Utility Damage Prevention Plan.

Pre-Demolition Marking of Utilities in the Demolition Area – Utilities must be marked with either tape, flagging, or paint every 25 ft, and at least twice within the same room, signifying their current status whether they are live or protected utilities (red), when it is safe for demolition (green) or being rerouting (blue). See Utility Damage Prevention Plan(s) for details.	
	Utilities must be marked with either tape, flagging or paint every 25 feet
	Utilities must be marked at least twice within the same room
	Utilities will be color coded to indicate their current status.
	Blue indicates utilities that are safe to be rerouted
	Green indicates utilities that are safe for demolition
	Red indicates utilities that are NOT SAFE to demolish or reroute.
	Other- Explain:

Will this demolition work have any potential for Public or Adjacent Worker exposures? Yes No

If YES, utilize the full list of potential public exposures on the Public and Adjacent Worker Protection Plan Appendix C.22. If DEN determines during the walk that there ARE EXPOSURES and contractor marks no, demolition will not be approved to start.

Permits from Denver Fire Department (DFD) or the DEN project manager (PM) & Required Licenses/Certifications (attach)			
	Confined Space – DFD permit (Appendix C.15 if needed)		Shut-Down Request (does not replace LOTO MOP) - DEN PM
	Hot Work – DFD permit (Appendix C.20 if needed)		Wet Work (Appendix C.21)
	CDPHE Asbestos Abatement Notification and Permit		Denver Demolition Permit
	Certified Lead Abatement Contractor		Colorado - Certified Building Inspection for Asbestos
	Other- Explain:		

Other Required Attachments (check, confirming applicable documents are attached for employee reference)			
	Engineering Survey (for Engineered Demolition)		Equipment Manuals
	Job Hazard Analysis (required)		PPE Hazard Assessment (Appendix B.2 - required)
	Drawings/Plans Utilized for Demolition		Public and Adjacent Worker Protection Plan (Appendix C.22)
	Silica Safety Plan (Appendix C.16)		Utility Damage Prevention – Ground and Surface (Appendix C.11)
	Traffic Control Plans		Utility Damage Prevention – Walls and Floors (Appendix C.12)
	Other- Explain:		
	Supplemental emergency action plan (EAP) - attach		Original project-wide emergency action plan is sufficient.
A supplemental EAP must be submitted with this plan if the original project-wide EAP is not applicable to this work.			

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

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Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ ☐ Original ☐ Rev- Previous Sub #_____

Competent Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope – include specific locations:

If field adjustments need to be made to this plan, immediately notify your Contractor Safety Representative.

DETAILS – All fields must be completed.

Ventilation is being used as: ☐ an extra proactive measure or ☐ required to achieve hazard elimination and/or per SDS

Will you be using positive or negative pressure for ventilation: ☐ Positive ☐ Negative ☐ Both

Number of air exchanges required prior to entry: _____ ☐ N/A

Atmospheric Hazards (reason for ventilation)					
☐	Silica	☐	Dust	☐	Benzene/Hydrocarbons
☐	Carbon monoxide	☐	Hot Work	☐	Flammable or Oxygen Enriched
☐	Hexavalent Chromium	☐	Low oxygen	☐	Fume: Explain-
☐	H_2S	☐	Heat	☐	Other: Explain-

Provide the dimensions or volume of the space you are ventilating or select open air:

☐ Width _____ Length _____ Depth/Height _____

☐ Diameter _____ Depth/Height _____

☐ Contractor Calculated Volume of Space _____ (show calculations on attached page)

☐ Open air ventilation assistance

Type of space being ventilated							
☐	Trench	☐	Open area outside	☐	Crawl space	☐	Indoor area – ceiling height _____
☐	Utility Tunnel	☐	Precast structure	☐	Confined space	☐	Other: Explain-

Exhaust Location			
☐	Inside Building in construction area	☐	Outside in a public area/adjacent worker area
☐	Inside building publicly accessible	☐	Outside with no public or adjacent worker exposure
☐	Outside in construction area	☐	Location at lower level
☐	Other: Explain-		
Have you ensured your exhaust location is not near an intake unit? ☐ Yes ☐ No- STOP, relocate exhaust			
What is the linear distance to your exhaust location? _____ft ☐ N/A			

Intake Location
What is the linear distance to your intake location? _____ft ☐ N/A
Is the air intake in a safe, clean source of air? ☐ Yes ☐ No- STOP, relocate intake

Equipment Information – check all that apply					
Type of Air Mover					
☐	Blower Fan	☐	Venturi Pneumatic Air Blower	☐	Fume extractor/smoke eater/filtration scrubber
☐	Drum Fan	☐	Fixed Frame Portable Blower	☐	Explosion Proof Blower
☐	Other: Explain-				
Type of Duct					
	N/A		Non-flammable ducting be used		Duct Length
	Rigid		Duct will be crimped or compressed		Number of bends*
	Flexible		Other: Explain-		
Will duct(s) and air mover(s) be grounded and bonded? ☐ Yes ☐ No					
Are you ventilating or working in an area with flammable gases or vapors or fuel? ☐ Yes ☐ No					

Air Changes Calculation for Simple, Unobstructed Confined Space– Is your Equipment Adequate?					
Airflow – Only enter one airflow type in orange below. Refer to User's Manual					
Assumed cubic ft/min airflow (CFM)		ft^3/min	**Assumed linear ft/min airflow**		ft/min
Measurements – Entry by Contractor			**Calculations**		
Diameter of duct/fan (in/12)		ft	Area of each duct/fan		sq ft
Number of ducts/fans*		System(s)	Total area of duct/fan		sq ft
Occupied space height/depth**		ft	Total airflow/hr based on ft/min		ft^3/hr.
Occupied space length (box)**		ft	Total airflow/hr based on CFM		ft^3/hr.
Occupied space width (box)**		ft	Occupied space volume (box)		ft^3
Occupied space diameter (cylinder)**		ft	Occupied space volume (cylinder)		ft^3
Occupied space volume (GC calc.)		ft^3	***The number of ducts/fans must be at least one.**		
To calculate the volume of your space you need to enter the height/depth **AND either the width and length **OR** the diameter.					
Calculations			**On-Site Verification**		
Total Air Changes Per Hour (ACH)		**ACH**	**Expected Linear Ft/Min Airflow**		**ft/min**
A minimum of 20 ACH are required for confined spaces and small working spaces with poor ventilation, unless reasoning and evidence can be provided for decreasing the ACH.			**Contractor must confirm airflow is accurate by measuring with an anemometer at each duct/fan.** Calculation assumes if multiple fans are in use, they fans are the same assumed CFM. **Actual Linear Airflow (field use)**: _____		

This calculator is meant for simple volume confined spaces without airflow obstructions. The CFM required to achieve Air Changes Per Hour (ACH) is a calculated guess; air flow measurement is required to confirm actual flow achieves the calculated flow. Actual flow at the source (fan or duct) does not mean you are effectively moving air as the configuration of the space will impact movement. Always use continuous air monitoring to ensure you are reaching desired and safe levels of breathing air.

If calculator does not work for your site-specific planning, please attach additional pages showing your ventilation calculations.

For the calculator to work, Contractor must enter only ONE number highlighted in orange for the total airflow in cubic feet per minute (CFM) **OR** assumed linear airflow **OR** the number of air changes per hour (ACH) that you need to achieve **AND** measurements in the left column. If you want to check if your equipment may be adequate for your space, enter one of the assumed airflows at the top of the calculator. If you want to check what equipment you need to use (how many CFM you must achieve), enter the number of air changes (ACH) you need to achieve at the bottom.
*Note, for larger spaces, you can assume you are using more than one fan/duct assembly of the same airflow rate and size.

Example CFM Manufacturer Table – Refer to your Equipment User's Manuals

Look in your attached user's manuals for expected airflow. **Bends and kinks in ducting significantly diminish airflow.** Many blowers include tables for a variety of scenarios, like the examples below. Airflow needs to be confirmed on site after setting up ventilation equipment. (Free air means without a duct attached.)

Size"	Model	Blade Dia. (mm)	Voltage (V~)	Frequency (Hz)	Phase	Poley	Watts (W)	Low Speed CFM	High Speed CFM	RPM	Static Pressure
8	246340	200	120	60	1	2P	165	485	570	3300	480
12	246343	300	120	60	1	2P	430	1394	1640	3300	520
16	252605	400	120	60	1	2P	720	2422	2850	3250	450

SAMPLE CHART				
Model #	FREE AIR DELIVERY CFM	25 FT DUCT STRAIGHT CFM	25 FT DUCT 1-90° BEND CFM	25 FT DUCT 2-90° BENDS
Serial #	1570	1222	1047	873

Other Required Attachments (check, confirming all are attached for employee reference)

☐	Anemometer User's Manual	☐	User's Manuals for ventilation equipment
☐	Job Hazard Analysis	☐	Ventilation calculations (if necessary)
☐	Other:		

Additional Information for Employees

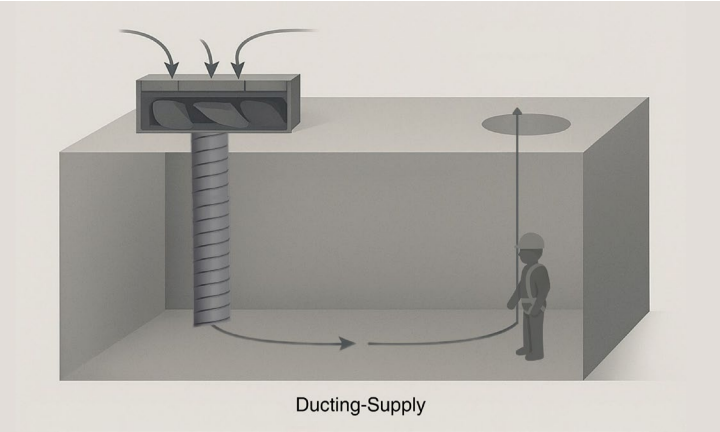
This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

Ventilation Requirements

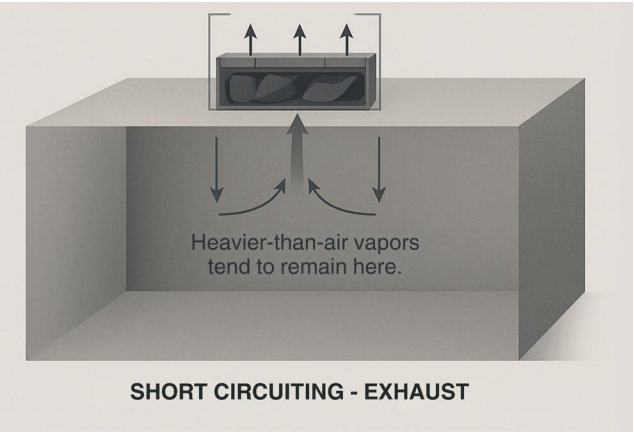
- All ventilation components need to be inspected prior to use and maintained for duration of its life, including filter maintenance and replacement where used.
- Duct (tube) needs to be inspected for damage such as rips, tears, holes etc. prior to use.
- For welding mild steel indoors, mechanical ventilation is required when there is a space of less than 10,000 cubic feet (approx. 22'x22'x22') per welder or when working within 16-ft of the ceiling. For any work on metals other than mild steel, or in spaces with structural barriers, mechanical ventilation is required. Regardless of the space, combustible materials must be at least 35 feet away, with no combustible materials in concealed spaces on the opposite side of walls or floors. (OSHA 1910.253)
- Ventilation calculations must be completed to estimate adequate air changes per hour (ACH).
- An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere. Ventilation must be continuous and the atmosphere within the space must be continuously monitored.
- The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present.
- The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.
- Air flow must be measured on site with an anemometer to ensure the assembled ventilation equipment provides the air flow required to achieve the air change per hour (ACH) calculations.

Ventilation Considerations – Tips and Resources for Ventilation Planning

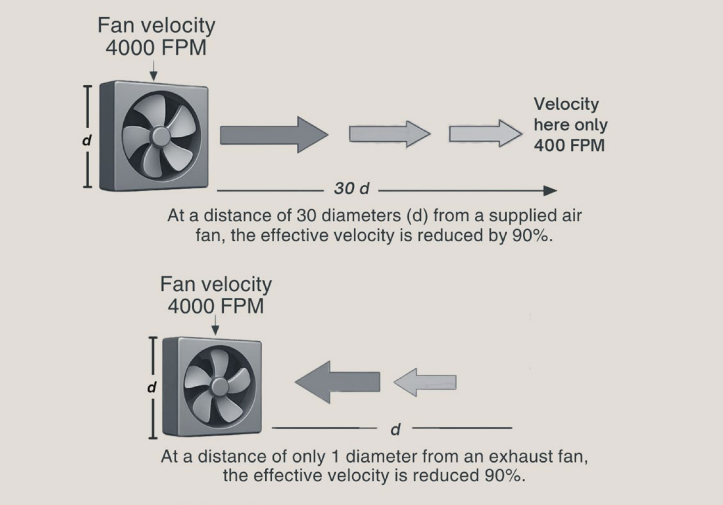
- The CFM required to achieve Air Changes Per Hour is a calculated guess; air flow measurement is required to confirm actual flow achieves the calculated flow. Actual flow at the source (fan or duct) does not mean you are effectively moving air as the configuration of the space will impact movement. Always use continuous air monitoring to ensure you are reaching desired and safe levels of breathing air.
- Air flow compares to flow of water from a hose, with strong, concentrated, and steady flow at the source, but reduced, scattered and weak as distance increases from the hose.
- When comparing the cone shape air pattern blowing out from a fan or blower, it can look like a narrow spotlight or a wide flood light.
- The wind direction and air speed either helps or hinders the air flow from a blower or fan.
- Any person or equipment in the path of air flow in front of or behind a fan or blower blocks or reduces the air flow.
- Air flow follows path of least resistance just like water does.
- Use a hang flag or banner to indicate direction of air flow and that it is active.
- A fan can pull air past the fan housing to increase air flow just like an airplane engine.
- Positive air flow is always better than negative air flow.
- Know vapor density of your vapors compared to air. Use lighter than air or heavier than air weight to assist fan flow direction to move the vapors.
- The fan or blower needs to be grounded and bonded to the ducts; ducts should be made of conductive static dissipating material.
- Multiple fan blowers increase air volume.
- OSHA Publication- Ventilation in Shipyard Employment: https://www.osha.gov/sites/default/files/publications/OSHA3639.pdf
- 1926 Subpart D, 1926.57 Ventilation: https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.57
- 1926 Subpart J, 1926.353 Ventilation and Protection in welding, cutting, and heating: https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.353
- 1926 Subpart V, 1926.953 Enclosed Spaces: https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.953
- 1926 Subpart AA, 1926.1203 Confined Spaces: https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.1203
- 1926 Subpart S, 1926.803 Compressed Air: https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.803
- The diagrams and tables below come from OSHA, NFPA 350, and ventilation manufacturer Super Vac. These are for illustrative purposes only and illustrate common ventilation applications and potential decreases in airflow. Always reference regulatory and manufacturer requirements.



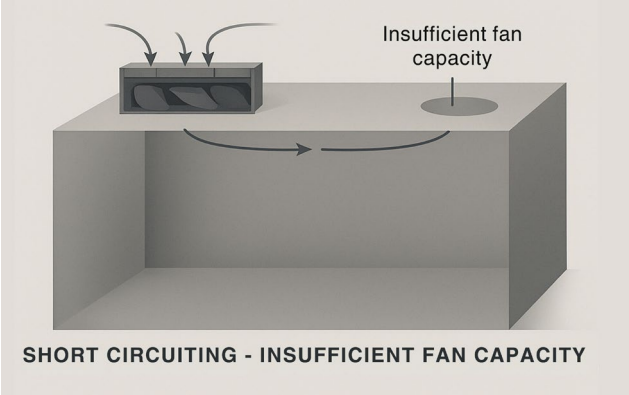
NFPA 350 Figure A.9.5.1.4(b) Ducting



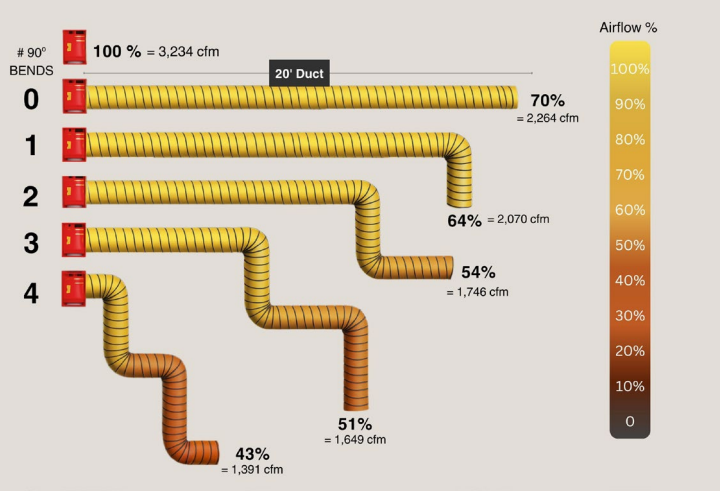
NFPA 350 Figure A.9.5.1.4(a) Insufficient Fan



NFPA 350 Figure A.9.3.3.1.3 Supply and Exhaust Ventilation

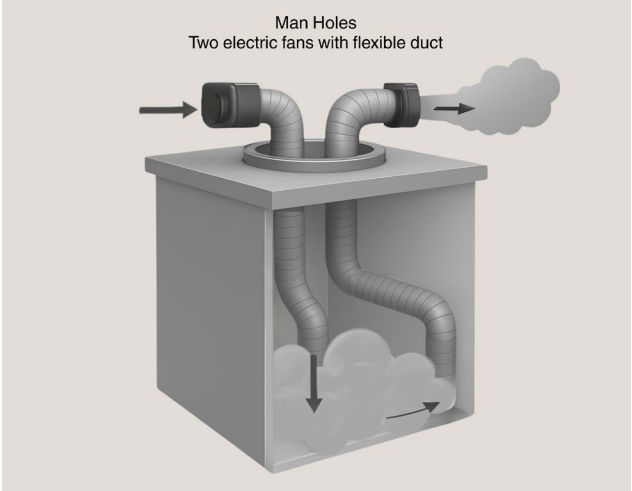


NFPA 350 Figure A.9.5.1.4(a) Insufficient Fan Capacity



Super Vac Manufacturing – Fire Fighter Ventilation Training

Values shown when connected to Outlet of a P164SE Ventilator.



Super Vac Manufacturing – Smoke Ventilation Training Manual page 20 Manhole Ventilation Scenario with Supply and Exhaust, gas heavier than air

Table 1 — Comparison of Ventilation Systems

DILUTION VENTILATION		LOCAL EXHAUST VENTILATION	
Advantages	Disadvantages	Advantages	Disadvantages
Requires less maintenance	Does not completely remove contaminants.	Captures contaminant at source and removes it from the workplace.	Requires regular cleaning, inspection and maintenance.
Effective control for small amounts of low toxicity chemicals.	Cannot be used for highly toxic chemicals.	Only choice for highly toxic airborne chemicals.	Ducting style may make it difficult to access the space.
Effective control for flammable or combustible gases or vapors.	Ineffective for dusts or metal fumes or large amounts of gases or vapors.	Can handle all sorts of contaminants including dusts and metal fumes.	
Best ventilation for small dispersed contaminant sources or mobile sources.	Requires large amounts of heated or cooled makeup air.	Requires smaller amount of makeup air since smaller amounts of air are being exhausted.	
	Ineffective for handling surges of gases or vapors or irregular emissions	Less makeup air is needed to heat or cool.	

Table 2 — Air Changes per Hour (ACH) and Time Required for a Desired Removal Efficiency1 *

	Minutes Required for Given Removal Efficiency		
ACH	**90%**	**99%**	**99.9%**
2	69	138	207
6	23	46	69
12	12	23	35
16	9	17	26
24	6	12	17
48	3	6	9

**NOTE: Assuming a mixing factor (K) of 1.0 (perfect mixing), multiply the time required by the actual mixing factor (one for ideal mixing to ten for poor mixing). A mixing factor of three can be assumed for a room with 12 ACH and good air movement.*

Tables Sourced from: OSHA Publication 3639-04 2013 –Ventilation in Shipyard Employment (link above)

GENERAL INFORMATION

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ □ Original □ Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained *	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

*** Attach medical surveillance, fit testing, and training records. (Add additional sheets if necessary.)**

DETAILS – All fields must be completed. **REMINDER- Call 303-342-4211 for all emergencies.**

If you need assistance with your respirator selection, please reference OSHA:
https://www.osha.gov/etools/respiratory-protection/expert-systems/respirator-selection

Respirator Rules – Any violations will result in disciplinary actions up to and including removal from project.

- All employees who are required to wear a respirator are required to receive training from their employer for the specific respirator being used for this task. If you have not been trained in the last 365 days, please stop and notify your employer.
- No respirator user with a tight-fitting respirator facepiece shall have facial hair or any other condition that interferes with the facepiece seal, such as corrective glasses, goggles, or other personal protective equipment.
- The user shall perform a user seal check, before each use.
- If user is having difficulty breathing, the seal breaks, or you can taste or smell contaminants, they need to leave the exposure area immediately and talk to their competent person about the respirator issues.
- **Confirm that the PAPR has passed flow test prior to each use and battery charge is adequate for work duration.**

Describe Scope of Work and Tasks Requiring Respirator			
Exposure Type:			
Attach all related Safety Data Sheets and Submit applicable Exposure Specific Plans per ROCIP Safety Manual Section 6.3.			
Silica	Dust	Fogs	Smoke
Asbestos	Lead	Fumes	Sprays
Benzene	Airborne Fibers	Mist	Gas\Vapors
Hydrocarbons	Other:		
Respiratory Protection Information			
Respirator Type:			
Emergency Escape Resp	PAPR Tight Fitting	Filter Facepiece/N95: Replaced every _____ hours	
Elastomeric Half Face	Supplied Air Half Face	Is this voluntary use? ☐ Yes * ☐ No	
Elastomeric Full Face	Supplied Air Full Face	Self-Contained Breathing Apparatus (SCBA)	
PAPR Loose Fitting	Other:		
Respirator Information:			
Make/Model of Respirator:		Assigned Protection Factor:	
Filter Information:			
Make/Type of Filter or N/A			
How often must new filters be put on and the old ones be disposed of? Every _____ hours or N/A			
Air Monitoring Information:			
Was/Will air monitoring conducted for this task? Yes (attach results) No (explain why not below)			

* If yes, Employees must be provided with Appendix D § 1910.134. Please attach signed copies

Hygiene	
Are respirators shared/common use? Yes * No	* If yes, employees must be provided with materials to clean the respirators before donning or putting on the respirator.
How are respirators being cleaned?	
How are respirators being stored?	

Self-Contained Breathing Apparatus (SCBA)
What air cylinders are being used for this task (make/type): _____
Contractor has confirmed cylinders provide Grade D or better breathing air. Yes No **(STOP and confirm)**

Supplied Air Respirator	
The contractor must set up the system on site and test that system has Grade D or better breathing air.	
Has this been completed?	
Yes; Attach test results.	
No; System must be tested, confirmed, and results submitted to and accepted by DEN prior to work start.	
Has the inline CO sensor been calibrated within the last 90 days or per the manufacturer's requirements? Yes No	
Hose length from breather box to workers: _____ft	If you are using breathing air cylinders, how many? _____
Hose length from air source to breather box: _____ft	Allowable number of people on the system: _____
List all components being used for the Supplied Air System and attach all user's manuals. (Attach more sheets if necessary)	
Component Make	**Component Model**

Escape or Emergency Air
Will the supplied air system include an escape cylinder, or will an Emergency Escape Breathing Apparatus (EEBA) be used?
Yes (answer below) No
▪ Escape cylinder will have a duration of: 5 minutes 10 minutes Other _____minutes ▪ What is the make/model of the cylinder: _____

FOR ALL EMERGENCIES CALL 303-342-4211

For all emergencies call 303-342-4211

In Case of Fire, after notifying the fire department, call: _____ 24/7 Phone:_____

Permit Information	
Project/GC:	Subcontractor:
Description of work to be done:	

Permit Approval to Start Work	**Permit Closeout Confirming Work is Satisfactory**
Start Date:_____ Time_____ ☐ Workers briefed on precautions and emergency procedures ☐ Area inspected – safeguards/precautions in place Crew Level Approval: _____ Init. _____ GC Supt. Approval: _____ Init._____	End Date: _____ Time_____ ☐ All areas have been inspected with no signs of fire/heat ☐ Work completed in accordance with this contract/permit Crew Level Closeout: _____ Init. _____ GC Supt. Closeout: _____ Init. _____

Fire Watch Instructions			
The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored. Extinguish spot fires and communicate any alarms. Maintain watch throughout work, including breaks, and for a minimum of **60 minutes** following the completion of work.			
Designated Watcher Name(s):			
Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____

Prior to the start of work, check the following:	
DFD Hot Work Permit is posted on site.	☐Yes ☐No ☐N/A
Flammable and combustible materials within 35 feet of point of operation have been removed, covered with fire retardant tarps, or otherwise shielded.	☐Yes ☐No ☐N/A
All floor and surfaces have been swept free of combustible dust or debris.	☐Yes ☐No ☐N/A
Any opening or cracks in the walls, floors, or ducts that are potential travel passages for sparks, heat and flames have been covered.	☐Yes ☐No ☐N/A
At least two 10-pound (2-A:20BC) fire extinguishers are within 30ft and accessible.	☐Yes ☐No ☐N/A
All employees performing hot work and acting as fire watch are trained to use the fire extinguishers.	☐Yes ☐No ☐N/A
A Fire Watch has been posted during hot work to verify that there are no live embers, sparks, or fires.	☐Yes ☐No ☐N/A
Protections that require fire code official approval:	
Sprinkler heads that could be activated by hot work have been covered by a wet rag.	☐Yes ☐No ☐N/A
Special precautions have been taken to avoid accidental operation of automatic fire detection systems.	☐Yes ☐No ☐N/A
Are these precautions approved by the fire code official?	☐Yes ☐No ☐N/A

Workday end or completion of work, check the following:	
Damp cloth guards or other protections have been removed from sprinkler heads at end of hot work.	☐Yes ☐No ☐N/A
A Fire Watch has been posted for **60 minutes** following completion of hot work.	☐Yes ☐No ☐N/A
Were any fire extinguishing devices used during the hot work covered under this permit?	☐Yes ☐No

This form is not exhaustive, and special conditions may require additional information to be included in your Daily Wet Work Permit.

Daily Wet Work Permit

In Case of Water Leak Call: _____ 24/7 Phone:_____

Permit Information	**For emergencies call 303-342-4211**
Project/GC:	Subcontractor:
Description of work to be done:	

Permit Approval to Start Work	**Permit Closeout Confirming Work is Satisfactory**
Start Date:_____ Time_____ ☐ Workers briefed on precautions and emergency procedures ☐ Area inspected – safeguards/precautions in place Crew Level Approval: _____ Init. _____ GC Supt. Approval: _____ Init._____	End Date: _____ Time_____ ☐ All areas have been inspected with no signs of leaking ☐ Work completed in accordance with this contract/permit Crew Level Closeout: _____ Init. _____ GC Supt. Closeout: _____ Init. _____

Water Watch Instructions			
Maintain watch throughout work, including breaks, and for a minimum of **30 minutes** following the completion of work to ensure all areas have been inspected with no signs of leaking or water damage. **Designated Watcher Name(s):**			
Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____	Inspection: _____ Work in Compliance? ☐Y ☐N Initials _____

Prior to the start of work, check the following:	
Do you have a copy of the Project's written procedure detailing what to do in the event of a leak or water damage?	☐Yes ☐No
Do you know the locations of shut off valves and are they accessible, unlocked, and labeled for easy ID?	☐Yes ☐No
Are the pipe diagrams located where the work is being performed under this permit? Are they correct?	☐Yes ☐No
Has the piping been drained prior to the start of any wet work?	☐Yes ☐No
Is a lockout/tagout procedure required for the work being performed under this permit? (attach if yes)	☐Yes ☐No
Is a spill response cart required for the work being performed under this permit? (if yes, station nearby)	☐Yes ☐No
Are floor openings or cracks protected from fluids leaking through and damaging areas below?	☐Yes ☐No
Is electrical and other sensitive equipment protected from potential water damage?	☐Yes ☐No
Confirm all drains (floor, sink, etc.) in the work area covered by this permit are functional and clean.	☐Yes ☐No
If the work is being performed under the roof, are the temporary or permanent roof drains/scuppers connected, free of debris and functioning properly?	☐Yes ☐No

Workday end or completion of work, check the following:	
Confirm all countertops with touchless/ hands free water faucets are free of all debris, materials and tools.	☐Yes ☐No
Hose bibbs are shut off and all hoses drained at the end of the workday?	☐Yes ☐No
Check that nothing is leaking before leaving the area at any time during the workday and at the end of each day.	☐Yes ☐No
Was the system drained after testing?	☐Yes ☐No

This form is not exhaustive, and special conditions may require additional information to be included in your Daily Wet Work Permit.

GENERAL INFORMATION **Call 303-342-4211 for all emergencies.**

Project: _____ General Contractor: _____

Subcontractor(s): _____

Date of anticipated Work Start: _____ Submittal Date: _____ Original Rev- Previous Sub # _____

Person Completing this Form: _____ Employer: _____

GC Safety Rep:	Signature:	24/7 Phone:

By signing this document, you acknowledge you have reviewed this plan and found it compliant with regulatory and contract requirements.

Narrative of Work Scope including location(s):

If field adjustments are made to this plan, immediately notify your contractor safety representative.

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative. Use Appendix C.24 Additional Personnel List if employee count exceeds number of spaces below.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

DETAILS – All fields must be completed.

All construction sites are considered an attractive nuisance which naturally draws the public to the site out of curiosity. Contractors and Subcontractors shall take the necessary precautions to protect the general public (individuals not contractually related to the project) from injury and prevent damage to property.

Contractors and Subcontractors shall not perform work in any area occupied or in use by the public unless specifically permitted by the contract or in writing from DEN Project Manager (ROCIP 10.28).

Public and Adjacent Worker Exposures (check all that apply and develop a plan for protection)							
☐	Vehicles/Trucks[1]	☐	Silica/Dust[2,4]	☐	Welding Equipment[2,3,4]	☐	Dropped Objects or Overhead Hazards
☐	Material Movement	☐	Noise[2]	☐	Live Traffic[1,4]	☐	Material Lifting/Hoisting[4]
☐	Flying Debris	☐	Wet Surfaces[4]	☐	Noxious Fumes[2,4]	☐	Tripping Hazards
☐	Chemical Spills	☐	Electrical[4,5]	☐	Heat or Cold	☐	Radiation[5]
☐	Sanitation	☐	Housekeeping	☐	Open Holes[4,5]	☐	Proximity to Other Structures
☐	Cutting/Grinding[3,4]	☐	Leading Edge[5]	☐	Confined Space[3,4]	☐	Energized Utilities[4]
☐	Restricted Visibility	☐	Restricted Walkway	☐	Vibrations	☐	Poor Lighting[2]
☐	Other: Explain -						

Means of Protecting the Public and Adjacent Workers (check all that apply and incorporate control method into plan)							
☐	Barricades[5]	☐	Screens	☐	Netting	☐	Fence[5]
☐	Gates[5]	☐	Guard Rails[5]	☐	Canopies Meeting IBC[5]	☐	Hose and Cable Covers
☐	Ramps	☐	Handrails	☐	Shields	☐	Monitor Public Routes
☐	Machine Guards	☐	Containments	☐	McCain Walls[5]	☐	Control Vibrations
☐	Haul Routes[4]	☐	Cover Loads	☐	Traffic Control Plans[1]	☐	Designated Walkway[1]
☐	Secure Equipment	☐	Secure Loads	☐	Control Access/Guard	☐	Secure Jobsite After Shift
☐	Buffer Zones[5]	☐	Site Survey	☐	Spotters	☐	Direct/Manage Pedestrian Traffic[1]
☐	Limit Materials	☐	Spill Kits	☐	Ventilation Plans[4]	☐	HEPA Filtering
☐	Housekeeping	☐	Lighting	☐	Water Suppression	☐	Monitor Atmosphere[2]
☐	Sanitation	☐	Work at Night	☐	Roll or Brush Coatings	☐	Less Hazardous Materials
☐	Manage Hot Work[3]	☐	Lockout/Tagout[4,5]	☐	Snow/Ice Removal	☐	Waste Removal Every _____
☐	Message Boards	☐	Signs	☐	Danger/Caution Tape	☐	Constructing Components Off Site
☐	Horn/Siren	☐	Flags	☐	Cones/Candlesticks	☐	Public Communications
☐	Flashing Lights	☐	Manage Visitors	☐	Coordination Meeting	☐	Inspect Public Prot. Every _____
☐	FR Poly-Sheeting	☐	Floor Covering	☐	Material/Equip. Escort	☐	Noise Monitoring[2]
☐	Other: Explain -						

1- MUTCD traffic control plan or IBC compliant designs must be submitted

2- Conduct monitoring as required by OSHA

3- Obtain permit from Denver Fire Department

4- Submit ROCIP Exposure Specific Pre-Plans from Section 6.3

5- Obtain a Shut Down Request from DEN Operations

Describe how the Contractor and Subcontractors will protect the public and adjacent workers from jobsite generated hazards based on the boxes checked in the lists above. All employees shall be trained on the Contractor or Subcontractor Public and Adjacent Worker Protection Plan including responsibilities in protecting the public.

This form is not exhaustive, and special conditions may require additional information and training for employees. Please attach any additional planning documentation necessary for your workers.

GENERAL INFORMATION

Call 303-342-4211 for all emergencies

Project: ______________________________ General Contractor: ______________________________

Subcontractor (Employer):____

Date of anticipated Work Start: ___________ Submittal Date: ____________

Authorizing Employer Representative Name: __________________________ Signature: ____________________

PERSONNEL – Contractor must be able to verify operator certifications/training when audited by DEN. Duplicate this sheet as necessary.

Operator Name	Training Date	Equipment Authorized to Operate (from list below)
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10
		☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10

EQUIPMENT DETAILS – List each piece of equipment. Mark N/A if a column does not apply. Attach Operator's Manual & Blind Spot Diagrams.

	Equipment Type (e.g. Dozer, Scraper, etc.)	Make	Model	Working slope allowance (If applicable)	Scheduled maintenance frequency
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Required Attachments			
☐	Equipment Blind spot diagrams	☐	Certification/Training/Evaluation Documentation
☐	Operators Manuals (current)	☐	Rigging component manufacturer charts with capacity and connection requirements (when lifting w/ equipment)
☐	Daily Inspection checklists for each type of HE		

PERSONNEL – Attach training documentation and/or qualifications. A signed letter from employer with their determination of competency must be included as well or provide names/signatures below from an authorized employer representative.

	The employer has designated the employee as the following per OSHA Regulations:						
Employee Name	Competent	Qualified	Authorized	Trained	Employer	Name of Employer Rep. Making Designation	Employer Rep. Signature

Emergency Lock Removal Form for Absent Worker

Date: _____ Time: _____
Absent Employee Name: _____
Name of person removing absent worker lock: _____ Signature: _____
Manager authorizing Lock Removal: _____ Signature: _____

Lock Information	
Location of lock/tag to be removed:	
Reason for emergency removal:	

Employee Contact Efforts			
	Made positive contact with employee prior to removal		Employee physically confirmed not on site or exposed
	Attempted to contact employee but did not make contact		Contact was not attempted – Explain why below:
REQUIRED- Employee verified not on site? Y N			

Employee notified prior to returning to the affected work area on date: _____ time: _____ via: phone in-person

Copy of this form provided to employee? Y - Date: _____ N

Employee Acknowledgement

I verify that I received a copy of the emergency lock removal notice for the removal of my lock/tag.

Date: _____ Employee Name: _____ Signature: _____

D

Appendix D- Contractor Weekly Safety Lookahead

The CSR and designated members of the contractor's staff must participate in scheduled weekly safety meetings. This requirement shall be met during weekly construction progress meetings unless DEN directs otherwise. The Contractor must complete the Weekly Safety Look-Ahead and Progress Review Form below and be prepared to review safety items for the week, including but not limited to, incidents and injuries and their corrective actions, resolution of safety issues, and upcoming safety submittal requirements.

CSR will prepare and submit Appendix D to DEN Safety and DEN Project Manager weekly, at least 24 hours in advance of the scheduled owner meeting.

Fillable PDF ROCIP 5 Safety Manual Appendix Forms can be found at: Denver International Airport - ROCIP 5 Safety Manual Appendix Forms

Project: _____ Date Submitted : _____
Prepared by : _____ Phone :_____

Completed this from and review at each weekly project meeting during Safety review or Schedule review

If you select Yes on any new task requiring pre-planning, please provide dates and any additional information below.

1st Tuesday of the month- Supervisor safety meeting documentation submittal is due

3-Week Look ahead				
New Task Requiring Pre-planning (section 6.3)	Yes/No	Task Start Date	Date Submittal is Due	Additional Actions Required
Utility Damage Prevention Walls and Floors				
Utility Damage Prevention Ground/Surface				
Silica and Slurry Control				
Respiratory Protection				
Ventilation				
Public or Adjacent worker protection				
Heavy Equipment & Operator List				
LOTO non-electrical & water systems				
LOTO Electrical				
Multi-employer LOTO				
Elevated Work – Scaffolding				
Elevated work – Ladders				
Elevated work – MEWPs				
Elevated work – Restraint/Arrest & Guardrail				
Crane Operations				
Critical Lift Crane Operations				
Confined Space Entry				
Demolition				
Hot work				
Wet work				
Traffic control				
Trenching				
Tunneling				

Subcontractor information				
Subcontractor upcoming pre-mobilization meetings If EMR is over 1.25 you must invite your DEN safety rep to the pre-mob meeting.	Date/Time:	Company Name	EMR over 1.25	Confirmed Enrollment
	/		☐ Yes ☐ No	☐ Yes ☐ No
	/		☐ Yes ☐ No	☐ Yes ☐ No
	/		☐ Yes ☐ No	☐ Yes ☐ No
	/		☐ Yes ☐ No	☐ Yes ☐ No
	/		☐ Yes ☐ No	☐ Yes ☐ No

Additional Look Ahead				
Scheduled Safety Preparatory Meetings for the next 3 weeks as required per 6.3	Date/Time:	/	Task /Type:	
	Date/Time:	/	Task /Type:	
	Date/Time:	/	Task /Type:	
	Date/Time:	/	Task /Type:	
Planned Task or Hazard Specific Training	Date/Time:	/	Task /Type:	
	Date/Time:	/	Task /Type:	
Monthly Supervisor Safety Meeting	Next Date/Time:	/	Topics:	
Weekly Toolbox Talk	Topics:			

Safety Performance Review				
ACC Build Safety		**# of Issues last week: _____ # of good obs.: _____**	**# Issues for project: _____ # of good obs. _____**	
Issue Number	**Issue Date**	**Issue Summary**	**Response Date**	**Corrective Action**
Contractor Daily Inspections		**Provide a summary below of Inspection findings and corrective actions for last week (or attach Daily Inspections sheets)**		

Incident Types (include all subcontractors)	**Number of Cases/Claims**			**Injury, Near Miss, VPD, Vehicle/Equip. Accident or Utility Hit**		
Be prepared to discuss incidents and corrective actions.	**Last Week**	**Year to Date**	**Project to Date**	**Contractor**	**Incident Date**	**Report Due Date**
First Aid Incidents (without clinic visit)						
First Aid Incidents (clinic visit)						
Medical Treatment Only Incidents						
Restricted Time Incidents						
Days Away Incidents						
Other Recordable Incidents						
OSHA Recordable Total						
Near Misses						
Utility Hit						
General Liability						
Builders Risk Claims						
Landside Vehicle/Equip. Incident (collision, tip over, etc.)						
Airside Vehicle/Equip. Incident (collision, tip over, VPD, etc.)				**Builders Risk Claims or Property Damage last 3 weeks**		
Project Safety Activities	**Last Week**	**Year to Date**	**Project to Date**	**Contractor**	**Incident Date**	**Report Due Date**
Safety Orientations Completed (Number of employees)						
Corrective Actions of Significance (e.g. discipline, stop work etc.)						
Number of Site Safety Inspections Completed						
Name of Supervisors Participating in Safety Inspections:						
Staffing Projections	**Day Shift**		**Night Shift**			
Approx. Number of Employees Expected to be on site						

GC Safety Professional Information (update as needed)					
Day Shift		Cell Phone		Email	
		Cell Phone		Email	
Night Shift		Cell Phone		Email	
		Cell Phone		Email	
Project Contact Information (update as needed)					
GC Project Manager		Cell Phone		Email	
GC Superintendent		Cell Phone		Email	

E

Appendix E- Subcontractor Premobilization Safety Meeting

The Contractor will conduct a Subcontractor pre-mobilization safety meeting on or before mobilization to review the Subcontractor's job hazard analysis, high hazard safety plans, discuss site safety issues and requirements, and address any special concerns. The Contractor shall present their approach to managing safety on high-risk tasks. The sample Subcontractor Premobilization Safety Meeting checklist in Appendix E will be used to discuss and document this meeting. All attendees shall acknowledge understanding by their signature, and the Contractor shall retain the meeting minutes for the duration of the project. The following are the minimum required attendees:

- Contractor's project manager, safety representative, and supervisors
- Subcontractor's safety representative and competent persons

The Contractor shall submit the signed Pre-Mobilization checklist, meeting minutes, and associated JHAs to DEN prior to subcontractor performing work on site.

See Section 6.2.2 for full requirements.

Fillable PDF ROCIP 5 Safety Manual Appendix Forms can be found at: Denver International Airport - ROCIP 5 Safety Manual Appendix Forms

Subcontractor Premobilization Safety Meeting (Required)

Project Name: _____ Meeting Date: _____ Date of anticipated Work Start: _____

Contractor: _____ Contractor Representative: _____ Signature: _____

Subcontractor: _____ Subcontractor Representative: _____ Signature: _____

Scope of Work: _____

The following project requirements, procedures, and hazards have been identified and reviewed with the Subcontractor

General Requirements Review	Yes	No	N/A	Comments or Follow up Actions Required
ROCIP enrollment				
Drug testing				
Site Specific Safety Orientation				
SSSP/EAP/Weather/Fatigue				
Incident & Near Miss Reporting				
JHA review/Daily Pre-task Plans/PPE Hazard Ass.				
Personnel Review Appendix A.2				
Lay down area(s) & Internal traffic control plan				
DFD Hot Work Permit				
DFD Confined Space Permit				
Other DFD/city permit:				
DEN Wet Work Permit				
Mobility and Security Requirements				
Security Badging				
Haul Route Maps				
Airfield vehicles/equipment & Driver Education				
Visitor Access				

Exposure Specific Required Plans (Section 6.3)	Required?			Required?	
	Yes	No		Yes	No
Crane Operations			Tunneling		
Elevated Work – Ladders			Silica Exposure/Slurry Control		
Elevated Work – MEWPs			Demolition		
Elevated Work – Scaffold			Ventilation		
Elevated Work – Leading Edge			Respiratory Protection		
LOTO – Electrical			Robotics		
LOTO – Non-Electrical Haz. Energy/Water System			Hot Work/Wet Work		
Utility Damage Prevention – Ground/Surface			Public/Adjacent Worker		
Utility Damage Prevention – Walls/Floors			Traffic Control (MHTs)		
Trenching			Heavy Equipment/Operator List		
Confined Space			Other:		

Notes

GC Supt. overseeing Subcontractor work: _____ Phone: _____

Subcontractor Lead Supervisor on site: _____ Phone: _____

Please print double sided.

Appendix F- Visitor's Waiver and Release

PLEASE READ CAREFULLY - THIS IS A LEGAL DOCUMENT THAT AFFECTS YOUR LEGAL RIGHTS

WAIVER and RELEASE

I, the undersigned, understand that the City and County of Denver acting on behalf of its Department of Aviation (the "City") and/or the relevant contractor have/has permitted me the limited and unexclusive right to enter and participate in a guided tour of the project (the "Tour"), part of which may be an active construction site located in the Denver International Airport ("Project Site"). In exchange for the City granting me permission to participate in the Tour, I agree to the following assumption of risk and waiver and release of all liability and claims and shall also comply with the safety requirements and other terms and conditions outlined herein (the "Waiver and Release").

1. **Assumption of Risk.** I am aware and accept that the Tour, in addition to the usual risks inherent at a public airport, has certain additional hazards and risks of an active construction site. I understand that hazardous conditions and risk of injury exist in all construction sites**. I understand and accept that entering the Project Site has inherent dangers and may cause death, serious injury, and/or damage to my person and/or property, and I FULLY ASSUME ALL OF THE RISKS ASSOCIATED WITH PARTICIPATING IN THE TOUR AND/OR ENTERING THE PROJECT SITE, including but not limited to**: any dangerous condition that may be present at DEN and/or the Project Site, any failure to practice reasonable safety measures and/or precautions, inadequate safety equipment, negligence in design, maintenance supervision, instruction or warning, and other known or unknown conditions which may cause or contribute to death, injury, and/or damages to my person or property. I agree that if I suffer injury or illness, Staff can, at my cost, arrange any medical treatment and emergency service as is deemed necessary for my health and safety.

2. **Waiver of Liability and Release of Claims. I, on behalf of myself and my heirs, executors, administrators, legal representatives, assignees, and successors in interest, WAIVE, RELEASE, HOLD HARMLESS, FOREVER DISCHARGE AND AGREE THAT I WILL NOT SUE OR MAKE ANY CLAIM OR OTHERWISE BRING ACTION AGAINST THE CITY, its elected and appointed officials, representatives, agents, employees, officers, tour guides ("Staff"), as well as all project contractors, subcontractors, and their respective officers, directors, agents, and employees (collectively, the "Released Parties") for any liability, loss, theft, injury or damage to my person or property resulting directly or indirectly from participating in the tour or entering the project site due to any cause whatsoever, including but not limited to any dangerous condition, negligence, actions, or inactions of the City and/or other Released Parties.** I understand and agree that the City, Staff, and other Release Parties assume no liability for any loss, theft, damage, or injury to property or persons whether arising in contract, negligence, equity, or otherwise. I further agree that if I violate this agreement and attempt to bring suit against any Released Party named herein, that I will be held responsible for attorney's fees and any costs incurred by such party in defending such action.

3. **Safety Requirements.** I agree at all times during the Tour, to take personal responsibility for my own safety and abide by all safety requirements in this Waiver and Release and all additional instructions given by Staff ("Safety Requirements"), including but not limited to the following safety precautions:

a. Hard-hats, safety glasses and high visibility vests must be worn by all visitors at all times.
b. Although work boots are not required, all visitors shall wear low-heeled leather shoes. High heels of any kind or open-toed sandals are not permitted.
c. All visitors are to be escorted at all times by a badged employee while on the Project Site.
d. Display visitor's badge on the outer garment at all time
e. BE ALERT for changing conditions and ongoing construction activities while walking on the Project Site. LOOK and LISTEN before you move from one position to another.
f. Be aware of uneven walking surfaces and extreme care shall be taken with each step.
g. No firearms, drugs or alcoholic beverages are permitted on the site.
h. All warning signs and barricades must be obeyed.
i. Do not stray from the approved path for ingress and egress.
j. Do not enter areas with inadequate lighting.

k. Be aware of and stay clear of any overhead hazards.
l. Smoking is only permitted in designated areas.
m. Do not touch construction materials of any kind without written authorization from DEN.
n. Do not lean on or reach beyond any handrails or barricades.
o. Report any hazards prior to leaving the site.
p. No written correspondence regarding any hazards observed on the site shall be written or forwarded after leaving the site unless previously agreed upon at the site.
q. Call 303-342-4211 in the event of an emergency.

4. **Compliance with Laws.** I agree to comply with all relevant laws, rules, and regulations while on airport property.

5. **Photo License.** I agree to grant to the City and County of Denver a worldwide, royalty-free license to use my photographic, video, or digital likeness solely for promotional, educational, and/or commercial purposes.

6. **Noncompliance.** I accept that non-compliance with the Safety Requirements may result in bodily injury, death, or permanent disability. I understand that non-compliance with this Waiver and Release may result in my removal from the Tour. I agree that the City may revoke the permission to participate in the Tour at any time.

7. **No Unsanctioned Photography.** I acknowledge the confidential nature of the Owner construction procedures and processes and agree not to photograph, reproduce, or divulge the same without the written consent of the City.

8. **Modification.** I understand that this waiver and release of liability agreement may not be modified orally. Any modification must be in writing and signed by all parties or their duly authorized representatives.

9. **Severability.** I understand that this waiver and release of liability agreement is intended to read as broad and inclusive as is permitted by the law of the State of Colorado, and that if any portion hereof is held invalid, it is agreed that the remaining terms of this agreement shall continue in full legal force and effect.

10. **Governmental Immunity.** Nothing in this agreement shall be construed to waive, limit, or otherwise modify any governmental immunity that may be available to the City and its officers, officials, appointees, employees, agents, and representatives under the Colorado Governmental Immunity Act, Colorado Revised Statutes §24-10-101. *et seq.*

By signing below, **I affirm that I have read this Waiver and Release in its entirety and I understand, consent, and agree to its contents and sign it voluntarily**.

Name of Touring Group

Print Name of Participant	Signature of Participant	Date

If above Participant is under 18 years of age:

Print Name of Parent/Guardian	Signature of Parent/Guardian	Date

G

Appendix G- Safety Orientation Training Acknowledgement

PROJECT: **PERSON CONDUCTING ORIENTATION:**

Name of Employee: (Print Name)	**Date:**
Company:	**Badge #:**

The following topics are to be reviewed with all employees during their initial site orientation for ROCIP 5.

Topics:

1. Information to acquaint the employee with special safety requirements of the work site, security, and traffic regulations.
2. Employer and employee rights and responsibilities for Safety
3. Description of the nature of the project
4. Drug free workplace and substance abuse testing
5. Accident reporting procedures, Medical Provider List, Emergency Response (303-342-4211 for 911)
6. How to report unsafe acts or conditions, including SeeSay & assigned DEN Safety Professional contact information
7. Site Safety Accountability Program
8. Personal protection equipment requirements
9. Hazards prevalent for the work being performed (fall protection, trenching, ladder usage, scaffold safety, etc.)
10. Hazard Communication Program
11. Emergency Evacuation Procedures
12. Good housekeeping practices
13. Job Hazard Analysis (JHA) & Pre-Task Planning from Section 6.3
14. Proper decorum, public interaction, and media protocols
15. Return to work programs, incident (to include near misses) reporting procedures, workers compensation requirements, and medical provider list
16. Other _____

Employee Comments:

Contractor confirmed Negative pre-employment drug screen? **Safety Rep Initial for yes _____**

Contractor confirmed Employer is enrolled in ROCIP? **GC Rep Initial for yes _____**

General Contractor must keep Orientation Acknowledgement and pre-employment drug screen results on file for duration of project.

By signing this site orientation form, I hereby acknowledge that the basic site safety controls outlined above have been thoroughly reviewed with me and that I agree to obey by the contents of the site safety requirements.

_____ _____

Employee Signature Date

Note: Any employee questions regarding the Safety Requirements shall be directed to the Contractor's Project Safety Representative.

H

Appendix H and RMIS online forms do not replace the required Contractor Safety Representative narrative report. This information can also be found in the ROCIP Claims Manual.

Appendix H- Investigation/Claim Form Fields for RMIS

Contact via phone or email any member of DEN Safety or DEN Risk for Log-in Information to complete your report or claim information online. Emailed copies of this table are not accepted and is provided for your information gathering to complete the online reports. Where the Report Types column has an 'x' that means the information is required to be included in your report. You are encouraged to print or create an electronic copy of this form so you can gather the information during your investigation.

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Please select the type of report(s) you are completing:	*Single-Select:* □ Incident Report (Includes Injuries, First Aid, and Denial of First Aid) □ Near Miss □ Lessons Learned □ Vehicle Incident □ Equipment Incident □ Builder's Risk/Property Damage □ General Liability □ Environmental Pollution	x	x	x	x	x
Does Contractor Intend to File a Claim with ROCIP or is this a Notification Only?	*Single-select:* □ Have Filed a Claim □ Intend to File a Claim □ Notice of Potential Claim Only at this time □ Not Planning to File	x	x	x	x	x
PROJECT INFORMATION						
Project Name	free form text	x	x	x	x	x
DEN Contract Number	free form text	x	x	x	x	x
General Contractor	free form text	x	x	x	x	x
Contractor Company Reporting Claim	free form text	x	x	x	x	x
Email of DEN Project Manager	free form text	x	x	x	x	x

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Email of General Contractor Safety Representative Lead	free form text	x	x	x	x	x
Email of General Contractor Project Manager	free form text	x	x	x	x	x
Incident Location Type	*Single-select:* □ Airside- Movement □ Airside- Non-Movement Area □ Building- Public Area □ Building- Tunnels/Basement □ Building- Within Contained Project Limits (e.g. inside McCain walls) □ Landside- Roadway □ Landside-Parking Area □ Other Facility Area □ Other	x	x	x	x	x
If Other, describe:	free form text					
YOUR INFORMATION						
Name of Individual Completing this Report (First & Last)	free form text	x	x	x	x	x
Email of Individual Completing this Form	free form text	x	x	x	x	x
Telephone of Individual Completing this Form	###-###-####	x	x	x	x	x
INCIDENT INFORMATION						
Today's Date (Date of Report)	mm/dd/yyyy	x	x	x	x	x
Date Incident was reported to Supervisor	mm/dd/yyyy	x	x	x	x	x
Date Incident was reported to General Contractor Rep.	mm/dd/yyyy	x	x	x	x	x
Date of Incident	mm/dd/yyyy	x	x	x	x	x
Time of Incident (approximate)	hh:mm – military time	x	x	x	x	x
Location or Address of Loss	free form text			x	x	x
GC's Superintendent overseeing operation where incident/loss occurred (First & Last)	free form text	x	x	x	x	x
Superintendent's DEN Badge Number (enter NA if no badge)	free form text	x	x	x	x	x
Direct Supervisor/Foreman of Operation (First & Last)	free form text	x	x	x	x	x

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Supervisor's DEN Badge Number (enter NA if no badge)	free form text	x	x	x	x	x
Supervisor's Email	free form text	x	x	x	x	x
Supervisor's Phone Number	free form text	x	x	x	x	x
Was the incident/injury caused by a Contractor employee (other than the injured worker if this is an incident report)?	Yes, No	x	x	x	x	x
If Yes		x	x	x	x	x
Name of Company Employee works for:	free form text	x	x	x	x	x
Name of Employee (First Last)	free form text	x	x	x	x	x
Employee's DEN Badge Number (enter NA if no badge)	free form text	x	x	x	x	x
Trade Association	*Single-select*: □ Pre-Apprentice □ Apprentice □ Journeyman □ Master □ No Association	x	x	x	x	x
Trade Association Name	free form text	x	x	x	x	x
Union Association	Yes, No	x	x	x	x	x
Union Association Name	free form text	x	x	x	x	x
Employee Position Type	*Single Select:* □ Non-Supervisor Trade Employee □ Lead □ Foreman □ Superintendent □ Non-Supervisory Project Personnel (i.e. Field Engineer) □ Supervisory Project Personnel (i.e. Project Manager) □ Other	x	x	x	x	x
If Other, please describe:	free form text	x	x	x	x	x

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Employee Tenure on Project	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5+ Years	x	x	x	x	x
Employee Tenure with Company	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5-10 Years □ 10-20 Years □ 20+ Years	x	x	x	x	x
Employee Tenure in Trade	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5-10 Years □ 10-20 Years □ 20+ Years	x	x	x	x	x
Short Description of Incident	free form text	x	x	x	x	x
Short Description of Incident continued…	free form text	x	x	x	x	x
Describe the job duties being performed when incident occurred.	free form text	x	x	x	x	x
List the causal factors	free form text	x	x	x	x	x
List the corrective actions	free form text	x	x	x	x	x
Has a similar incident occurred before?	Yes, No	x	x	x	x	x
Were injuries associated with this event?	Yes, No	x		x	x	x
Were mulitple injuries associated with this incident?	Yes, No	x		x	x	x
Did incident/event have SIF potential?	Yes, No	x	x	x	x	x
Will this claim exceed $2,500 for injuries or $25,000 for all other claims?	Yes, No	x	x	x	x	x
INJURED PERSON INFORMATION						

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Select Injured Person Type (note if multiple people are injured, multiple/individual reports must be submitted)	*Single-select:* □ Contractor Employee □ DEN Employee □ Stakeholder Employee □ Public/3rd Party □ No Injury Associated with Claim	x		x	x	x
Name of Injured Person (First & Last)	free form text	x		x	x	x
Address of Injured Person	free form text	x		x	x	x
Email of Injured Person	free form text	x		x	x	x
Phone Number of Injured Person	free form text	x		x	x	x
Injured Person's DEN Badge Number (enter NA if no badge)	free form text	x		x	x	x
For Contractor Employee Injuries, complete the following:						
WC Claim Number	free form text	x				
Trade Association	*Single-select*: □ Pre-Apprentice □ Apprentice □ Journeyman □ Master □ No Association	x				
Trade Association Name	free form text	x				
Union Association	Yes, No	x				
Union Association Name	free form text	x				
Employee Position Type	*Single-select:* □ Non-Supervisor Trade Employee □ Lead □ Foreman □ Superintendent □ Non-Supervisory Project Personnel (i.e. Field Engineer) □ Supervisory Project Personnel (i.e. Project Manager) □ Other	x				
If Other, please describe:	free form text	x				

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Employee Tenure on Project	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5+ Years	x				
Employee Tenure with Company	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5-10 Years □ 10-20 Years □ 20+ Years	x				
Employee Tenure in Trade	*Single-select:* □ 0-6 Months □ 6-12 Months □ 1-2 Years □ 2-5 Years □ 5-10 Years □ 10-20 Years □ 20+ Years	x				
Insurance Claim Number (or enter "First Aid")	free form text	x				
Injury Classification	*Single-select:* □ Hit- No First Aid □ First Aid □ Medical Treatment Only □ Restricted Duty □ Lost Time □ Permanent Disability □ Fatality	x				
If multiple Injuries, List all Names here:	free form text	x		x	x	x
PROPERTY DAMAGE AND POLLUTION INFORMATION		(Complete Section for: Builder's Risk, General Liability, Environmental Pollution)				

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Type of Loss	*Multi-select:* □ Fire □ Flood □ Hail □ Lightning □ Water □ Wind □ Theft □ Vandalism □ Air Pollution □ Ground Pollution □ Water Pollution □ Other				x	x
Is a water source threatened?	Yes, No					x
If yes, provide details.	free form text					x
Was any existing property damaged?	Yes, No		x	x	x	x
If yes						
Estimated Dollar Value of Property Damage	Whole numbers only, no symbols			x	x	x
Describe the property damage:	free form text			x	x	x
Property Owner's Name	free form text			x	x	x
Property Owner's Address (if DEN, NA)	free form text			x	x	x
Property Owner's Email (if DEN, NA)	free form text			x	x	x
Was any property under construction damaged?	Yes, No			x	x	x
If yes						
Estimated Dollar Value of Property Damage	Whole numbers only, no symbols			x	x	x
Estimated Dollar Value of Entire Loss	Whole numbers only, no symbols			x	x	x
Describe the property damage:	free form text			x	x	x
UTILITY INFORMATION						
Were any utilities damaged in this incident?	Yes, No	x	x	x	x	x
If yes:						

		REPORT TYPES ***(x indicates the field is required)***				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Utility Location	*Single-select:* □ Underground □ Overhead □ Floor □ Wall	x	x	x	x	x
Utility Damage Prevention plan and walk with DEN Safety completed?	Yes, No, NA	x	x	x	x	x
Locates complete and up to date?	Yes, No, NA	x	x	x	x	x
Was utility identified (i.e. known) by locates, SUE sweep, or drawings?	Yes, No, NA	x	x	x	x	x
Was utility depth confirmed via pothole or non-destructive means?	Yes, No, NA	x	x	x	x	x
Was utility exposed/visible at time of strike?	Yes, No, NA	x	x	x	x	x
Type of Utility	*multi-select:* □ electrical □ natural gas □ jet fuel □ water □ sanitarystorm □ communication □ fire supression □ FAA □ Other	x	x	x	x	x
If other, describe:	free form text	x	x	x	x	x
RESPONDER/AGENCY NOTIFICATION INFORMATION						
Select any agencies or departments that were contacted:	*multi-select:* □ Police □ Fire □ EMS □ DEN Environmental □ DEN Ops □ DEN Security □ 811 □ EPA □ State Agency □ FAA □ Other □ None	x	x	x	x	x

		REPORT TYPES *(x indicates the field is required)*				
DEN CONTRACTOR REPORT TYPE(S)	**Entry Field**	**Incident Report**	**Near Miss/ Lessons Learned**	**Vehicle/ Equip. Incident**	**BR/ Property Damage**	**GL / EP**
Does OSHA need to be notified or have they been notifed?	Yes, No	x				
If Other, list:	free form text	x	x	x	x	x
List Agency/Report Number(s):	free form text	x	x	x	x	x
List Agency/Contact Information:	free form text	x	x	x	x	x
WITNESS INFORMATION						
Were there any witnesses?	Yes, No	x	x	x	x	x
If yes:						
Name of Witness 1 (First & Last)	free form text	x	x	x	x	x
Address of Witness 1	free form text	x	x	x	x	x
Email of Witness 1	free form text	x	x	x	x	x
Phone Number of Witness 1	free form text	x	x	x	x	x
Witness 1 DEN Badge Number (enter NA if no badge)	free form text	x	x	x	x	x
Name of Witness 2 (First & Last)	free form text					
Address of Witness 2	free form text					
Email of Witness 2	free form text					
Phone Number of Witness 2	free form text					
Witness 2 DEN Badge Number (enter NA if no badge)	free form text					
Name of Witness 3 (First & Last)	free form text					
Address of Witness 3	free form text					
Email of Witness 3	free form text					
Phone Number of Witness 3	free form text					
Witness 3 DEN Badge Number (enter NA if no badge)	free form text					
Additional Witness Names if more than 3:	free form text					

I

Appendix I- Drug Screen Requisition and Authorization Form

The drug screen requisition and authorization form must be completed electronically (not handwritten) and the subject of the email line must include employee name, contractor name, and project number. DEN only pays for pre-employment drug screens at the authorized clinics. Please review the authorized provider list, noting that some clinics provide drug testing and some are authorized as medical providers only.

DEN ROCIP 4 & 5

DRUG and ALCOHOL SCREENS

REQUISITION and AUTHORIZATION FORM

INSTRUCTIONS: This form is to be completed in its entirety by the Employer/ Contractor's Safety Representative or an authorized Requesting Party (Lead Contractor's Safety Representative or DEN Safety) and emailed to desired clinic.

ROCIP Program (select one):

Date:

Employee Name:

Employer/Contractor Name:

Employer/Contractor Address:

Authorizing Representative Information: Name/Title

Company/Entity Name

Email Tel. No.

BILL ROCIP 4 PRE-EMPLOYMENT DRUG SCREENS TO: MARSH AND MCLENNAN
BILL ROCIP 5 PRE-EMPLOYMENT DRUG SCREENS TO: MARSH AND MCLENNAN
BILL ALL OTHER SERVICES TO: EMPLOYER/CONTRACTOR LISTED ABOVE

INDICATE ALL REQUESTED SERVICES BELOW:

PRE-EMPLOYMENT	POST ACCIDENT	REASONABLE SUSPICION
11 Panel Rapid Drug Screen	11 Panel Rapid Drug Screen	11 Panel Rapid Drug Screen
Breath Alcohol Test	Breath Alcohol Test	Breath Alcohol Test
Physical and History	Other:	Other:
Other:		

EMAIL COMPLETED FORM TO THE DESIRED CLINIC LOCATION AND, WHEN POSSIBLE, CONTACT TO SCHEDULE AN APPOINTMENT.

SEE ATTACHED LIST OF APPROVED PROVIDERS AND LOCATIONS

DEN is proud to provide access to the following
DEN ROCIP 4 & 5 Approved Drug Testing Partners

Concentra treated right

Secure Health Partners

Medicine for Business and Industry

For assistance contact ROCIP 4 Claims Consultant Dan Chilton at dan.chilton@marsh.com or 303.589.7063

For assistance contact ROCIP 5 Claims Consultant Dan Chilton at dan.chilton@marsh.com or 303.589.7063

Revised July 2025

ROCIP4/ROCIP5
LIST OF APPROVED MEDICAL CARE PROVIDERS

Pre-employment Drug Screens*	Medical Treatment	Provider Type	Approved Provider	Location and Contact Information	Hours
✓		Clinic	Concentra	550 E Thornton Pkwy, Ste 110, Thornton, CO 80229 Colorado_ccdia@concentra.com 720.872.0399 tel / 720.872.0421 fax	8am – 5pm M-F
✓		Clinic	Concentra	1730 Blake St, Ste 100, Denver, CO 80202 Colorado_ccdia@concentra.com 303.293.2273 tel / 303.296.8330 fax	8am – 6pm M-F
✓		Clinic	Concentra	11185 W 6th Ave, Lakewood, CO 80215 Colorado_ccdia@concentra.com 303.239.6060 tel / 303.239.6046 fax	8am – 6pm M-F
✓		Clinic	Concentra	9330 S University Blvd, Ste 100/120, Highlands Ranch, CO 80216 Colorado_ccdia@concentra.com 303.346.3627 tel / 303.683.9392 fax	8am – 5pm M-F
✓		Clinic	MBI	2550 S Parker Rd, Ste 150, Aurora, CO 80014 aseclinic@workwellworks.com 720.512.4408 tel / 720.512.5978 fax	8am – 5pm M-F
✓		Clinic **ONSITE AT DEN**	Secure Health Partners	8500 Pena Blvd, Concourse A, Room 3284, Denver, CO 80249 den@securehealthpartners.com 720.556.9791 tel	7am – 12pm M-F
✓		Mobile	Secure Health Partners	Mobile Services Available by Appointment – must have restroom avail den@securehealthpartners.com 720.556.9791 tel	24/7/365 by appointment
✓		Clinic	Secure Health Partners	2175 S Jasmine St, Ste 117, Denver, CO 80222 den@securehealthpartners.com 303.963.5554 tel	7am – 5pm M-F
✓	✓	Clinic	Concentra	3449 Chambers Road, Ste B, Aurora, CO 80011 Colorado_ccdia@concentra.com 720.859.6139 tel / 303.859.3294 fax	8am – 5pm M-F
✓	✓	Clinic	MBI	3350 Peoria St, Ste 190, Aurora, CO 80010 dneclinic@workwellworks.com 303.365.4646 tel / 303.365.4644 fax	8am – 5pm M-F
	✓	Clinic	Midtown Occupational Health Services	2420 W 26th Ave, Bldg A, Ste 300, Denver, CO 80211 frontdesk1@mdtwn.com 303.831.9393 tel / 303.831.6335 fax	7am – 4:30pm M-F
	✓	Clinic	Front Range Occupational Medicine	770 Simms St, Ste 100, Golden, CO 80401 frontdesk@frontrangemed.com 303.635.6337 tel / 303.862.7953 fax	8am – 5pm M-F
	✓	Clinic	Concentra	15235 E 38th Ave, Aurora, CO 80011 Colorado_ccdia@concentra.com 303.340.3053 tel / 303.342.3862 fax	8am – 8pm M-F 8am – 4pm Sat
	✓	**EMERGENCY ONLY**	UC Health Hospital	1635 Aurora Ct, Aurora, CO 80045 720.848.8650 tel / 720.848.7374 fax	24/7/365

*Post Accident and Reasonable Suspicion Drug Screens are paid for by the Contractor and may be obtained at the facility of their choice.