


Summary

Site:	Jefferson Labs	Responsibility Group:	Physics	Issue Date/Time:	5/29/2024 4:22:13PM
Area:	Bldg 203 - Experimental Hall D				
Title:	Installation of ECAL cables and dividers				

Work Scope

Job Description:	<p>We will install signal, LV, and HV cables inside the calorimeter dark box</p> <p>The work will be organized into several steps:</p> <ol style="list-style-type: none"> 1. All cables will be labeled and organized into bundles (groups of 7 and 6 cables) 2. The cable bundles will be installed on the detector vertical support chains 3. The signal, HV, and LV cables will be attached to PMT dividers 4 The dividers will be installed on the detector 5 Signal, HV, and LV cables will be installed between the crates and patch panels , connect cables to crates 6 Cables will be connected to patch panels
Tools And Equipment:	Cable strip cutter, portable ladder
Functional Location	Description
	- FORWARD CALORIMETER

Task Details

Task No	Task Description Work Categories	Hazards	Control Measures
1	CONNECT CABLES CONNECTORS TO PATCH PANELS		
1.1	<ul style="list-style-type: none"> • Student Safety 	<ul style="list-style-type: none"> • Lab hazards affecting students may include radiation, oxygen deficient atmospheres, high noise levels, lasers and/or other industrial type hazards 	<ul style="list-style-type: none"> • Assign a trained/qualified mentor responsible for oversight of student's work activities • Comply with limitations associated with minor's (< 18 years of age) exposure to lab hazards • Comply with restrictons on students working 'after hours' & working alone • Conduct mentor/student safety briefings • Create Skill Requirements List (SRL) for the student • Ensure qualified escort(s) are provided for minors entering Radiologically Controlled Areas (RCAs) • Ensure students complete applicable lab safety training, including sign-off on Operational Safety Procedures (OSPs) • Provide on-the-job observation & coaching
2	INSTALL CABLES BETWEEN CRATES AND PATCH PANELS, CONNECT CABLES TO CRATES		

Task Details			
Task No	Task Description Work Categories	Hazards	Control Measures
2	INSTALL CABLES BETWEEN CRATES AND PATCH PANELS, CONNECT CABLES TO CRATES (continued)		
2.1	<ul style="list-style-type: none"> Electrical Equipment - Class 1 Mode 2 (Voltage less than or equal to 50Vac or 60Vdc Current Capacity less than or equal to 50A, Voltage >50Vac or 60Vdc Current Capacity less than or equal to 5mA, Non-Manipulative Diagnostics on Energized Equipment) (Do not forget to choose locks and tags and capacitors, if stored energy is present) Student Safety 	<ul style="list-style-type: none"> Electrical Shock Lab hazards affecting students may include radiation, oxygen deficient atmospheres, high noise levels, lasers and/or other industrial type hazards 	<ul style="list-style-type: none"> Assign a trained/qualified mentor responsible for oversight of student's work activities Comply with limitations associated with minor's (< 18 years of age) exposure to lab hazards Comply with restrictions on students working 'after hours' & working alone Conduct mentor/student safety briefings Create Skill Requirements List (SRL) for the student Develop a work plan & conduct pre-job briefing with qualified workers Does the person in this position operate electrical equipment other than using a light switch, for example, turning on/off appliances or common office equipment on or off? If YES, then ESC001 Basic Electrical Safety Training is required. Ensure qualified escort(s) are provided for minors entering Radiologically Controlled Areas (RCAs) Ensure students complete applicable lab safety training, including sign-off on Operational Safety Procedures (OSPs) Ensure tasks are assigned to qualified personnel only Is the person a TJNAF employee, subcontractor, or user who performs all modes of work on Class 1 electrical or electronics equipment? If YES, then ESC001 Basic Electrical Safety is required. *ESC007 Lockout/Tagout (LOTO) and ESC008 Electrical Safety Practical Application are only required IF performing Lockout/Tagout Provide on-the-job observation & coaching Shock Risk Assessment Required- add a custom control to document the level of shock PPE required, the limited approach boundary, and the restricted approach boundary required to perform the job Verify zero voltage verification has been performed and/or perform a test before touch
3	ATTACH DIVIDERS TO THE DETECTOR		
3.1	<ul style="list-style-type: none"> Permanent Ladder/Non-Standard Stairs Portable Ladder Student Safety 	<ul style="list-style-type: none"> Fall - Fall from Fixed Ladder Falling objects - Portable Ladders Falls - Portable Ladder Lab hazards affecting students may include radiation, oxygen deficient atmospheres, high noise levels, lasers and/or other industrial type hazards 	<ul style="list-style-type: none"> Assign a trained/qualified mentor responsible for oversight of student's work activities Complete SAF307 - Ladder Safety Training before using a ladder Comply with limitations associated with minor's (< 18 years of age) exposure to lab hazards Comply with restrictions on students working 'after hours' & working alone Conduct mentor/student safety briefings Create Skill Requirements List (SRL) for the student Ensure qualified escort(s) are provided for minors entering Radiologically Controlled Areas (RCAs) Ensure students complete applicable lab safety training, including sign-off on Operational Safety Procedures (OSPs) Maintain 3 points of contact while ascending/descending Perform a pre-use inspection Provide on-the-job observation & coaching Use only as indicated in manufacturer's instructions Use only portable ladders with minimum ANSI Type I - 250 lb. rating
4	ATTACH SIGNAL, HV, AND LV CABLES TO PMT DIVIDERS		

Task Details			
Task No	Task Description Work Categories	Hazards	Control Measures
4	ATTACH SIGNAL, HV, AND LV CABLES TO PMT DIVIDERS (continued)		
4.1	<ul style="list-style-type: none"> Electrical Equipment - Class 1 Mode 2 (Voltage less than or equal to 50Vac or 60Vdc Current Capacity less than or equal to 50A, Voltage >50Vac or 60Vdc Current Capacity less than or equal to 5mA, Non-Manipulative Diagnostics on Energized Equipment) (Do not forget to choose locks and tags and capacitors, if stored energy is present) Student Safety 	<ul style="list-style-type: none"> Electrical Shock Lab hazards affecting students may include radiation, oxygen deficient atmospheres, high noise levels, lasers and/or other industrial type hazards 	<ul style="list-style-type: none"> Assign a trained/qualified mentor responsible for oversight of student's work activities Comply with limitations associated with minor's (< 18 years of age) exposure to lab hazards Comply with restrictions on students working 'after hours' & working alone Conduct mentor/student safety briefings Create Skill Requirements List (SRL) for the student Develop a work plan & conduct pre-job briefing with qualified workers Does the person in this position operate electrical equipment other than using a light switch, for example, turning on/off appliances or common office equipment on or off? If YES, then ESC001 Basic Electrical Safety Training is required. Ensure qualified escort(s) are provided for minors entering Radiologically Controlled Areas (RCAs) Ensure students complete applicable lab safety training, including sign-off on Operational Safety Procedures (OSPs) Ensure tasks are assigned to qualified personnel only Is the person a TJNAF employee, subcontractor, or user who performs all modes of work on Class 1 electrical or electronics equipment? If YES, then ESC001 Basic Electrical Safety is required. *ESC007 Lockout/Tagout (LOTO) and ESC008 Electrical Safety Practical Application are only required IF performing Lockout/Tagout Provide on-the-job observation & coaching Shock Risk Assessment Required- add a custom control to document the level of shock PPE required, the limited approach boundary, and the restricted approach boundary required to perform the job Verify zero voltage verification has been performed and/or perform a test before touch
5	INSTALL CABLE BUNDLES ON THE DETECTOR CHAINS		
5.1	<ul style="list-style-type: none"> Portable Ladder Student Safety 	<ul style="list-style-type: none"> Falling objects - Portable Ladders Falls - Portable Ladder Lab hazards affecting students may include radiation, oxygen deficient atmospheres, high noise levels, lasers and/or other industrial type hazards 	<ul style="list-style-type: none"> Assign a trained/qualified mentor responsible for oversight of student's work activities Complete SAF307 - Ladder Safety Training before using a ladder Comply with limitations associated with minor's (< 18 years of age) exposure to lab hazards Comply with restrictions on students working 'after hours' & working alone Conduct mentor/student safety briefings Create Skill Requirements List (SRL) for the student Ensure qualified escort(s) are provided for minors entering Radiologically Controlled Areas (RCAs) Ensure students complete applicable lab safety training, including sign-off on Operational Safety Procedures (OSPs) Maintain 3 points of contact while ascending/descending Perform a pre-use inspection Provide on-the-job observation & coaching Use only as indicated in manufacturer's instructions Use only portable ladders with minimum ANSI Type I - 250 lb. rating
6	INSTALL LABELS ON CABLES AND ORGANIZED CABLES INTO BUNDLES (GROUPS OF 7 AND 6 CABLES)		

