

Ergonomic Project – 2006

Ladder Work



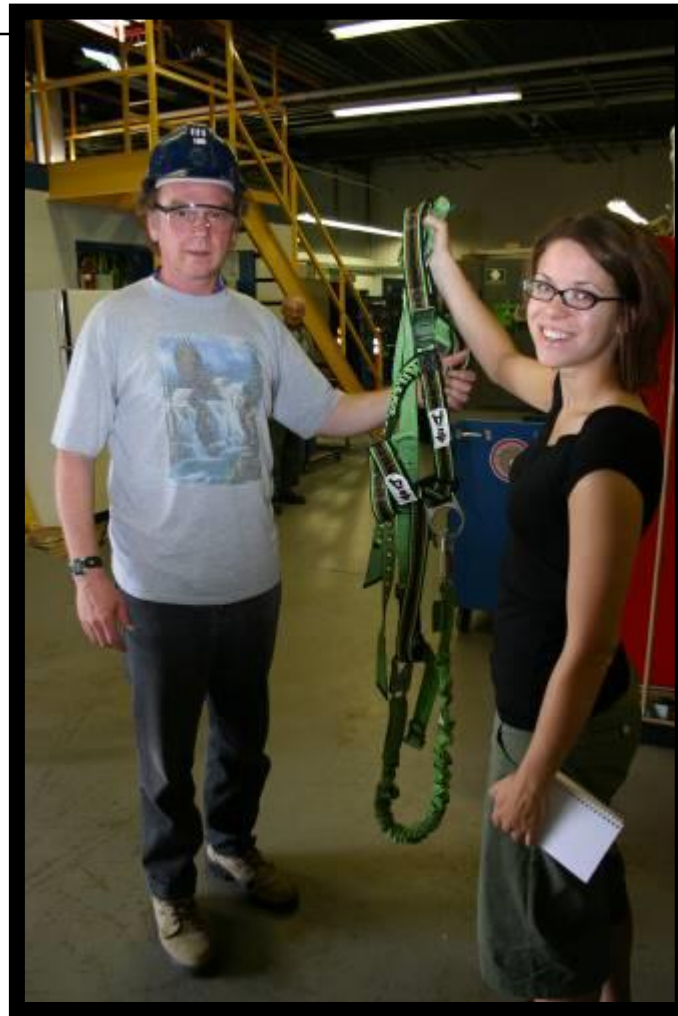
by Gary Majesky
WSIB Consultant, Project Mgr.



John Stepko and Jennifer York, 2006 Ergo Student/Researcher



John Stepko and Safety Harness



Climbing Ladder – 3 Point Contact



Working On Ladders



Installing Conduit Clamps



Overhead Conduit Work



Finding the Sweet Spot



Getting to the Top, 3-Point Contact



Getting to Conduit Not So Easy



Awkward Twists Very Common



On A Ladder and the Big Reach



Reaching & Awkward Connections



Awkward Twisting on Ladders



Twisting While Knee Flexed A Risk Factor for Knee Injuries



Traditional Ladder Posture



Moving Ladders To Chase Work Very Common



Positioning Ladder, Tracing Electrical Circuits



Moving Ladder & Gathering Material



Looking for Moving Hazards



Installing Conduit in Ceilings



Tight Work Space in Ceiling



Climbing 10 Foot Ladders Very Common



Ascending Ladder, 3 Point Contact



Climbing Ladders A Repetitive Task



Almost There, A Few Rungs More



Installing Conduit Clamps



Getting Ready to Hook-up



Safety Harness & Ladder Work



Hooked Up and Looking Up



Overhead Work and Conduit



Installing Conduit in Ceiling



Mobile Work Station - Ladders



John Stepko Demonstrates Why Ladder Safety Is Important



Making Connections Overhead



John Stepko Demonstrates Familiar Posture



Looking Overhead / Neck Extended Is Very Common



John Stepko Explains How To Install Conduit



Electricians Spend A Lot of Time on Top of Ladders



Exercising Caution When Dismounting



Climbing Ladders Stressful On Knees & Back



Handling Materials & Tools While Installing Clips



John Stepko Demonstrates Why Safety Harnesses Are Important



A Classic Ceiling Pose – Always Looking Up!



Connecting Conduit A Regular Task!



Measure Twice, Cut Once



Finding the Strut To Mount Clip



If it Doesn't Fit, Tap It



Safety Harnesses Can Prevent Serious Injury



Electricians At Great Risk of Falling off Ladders



The Job Is Rewarding - Thanks for Asking



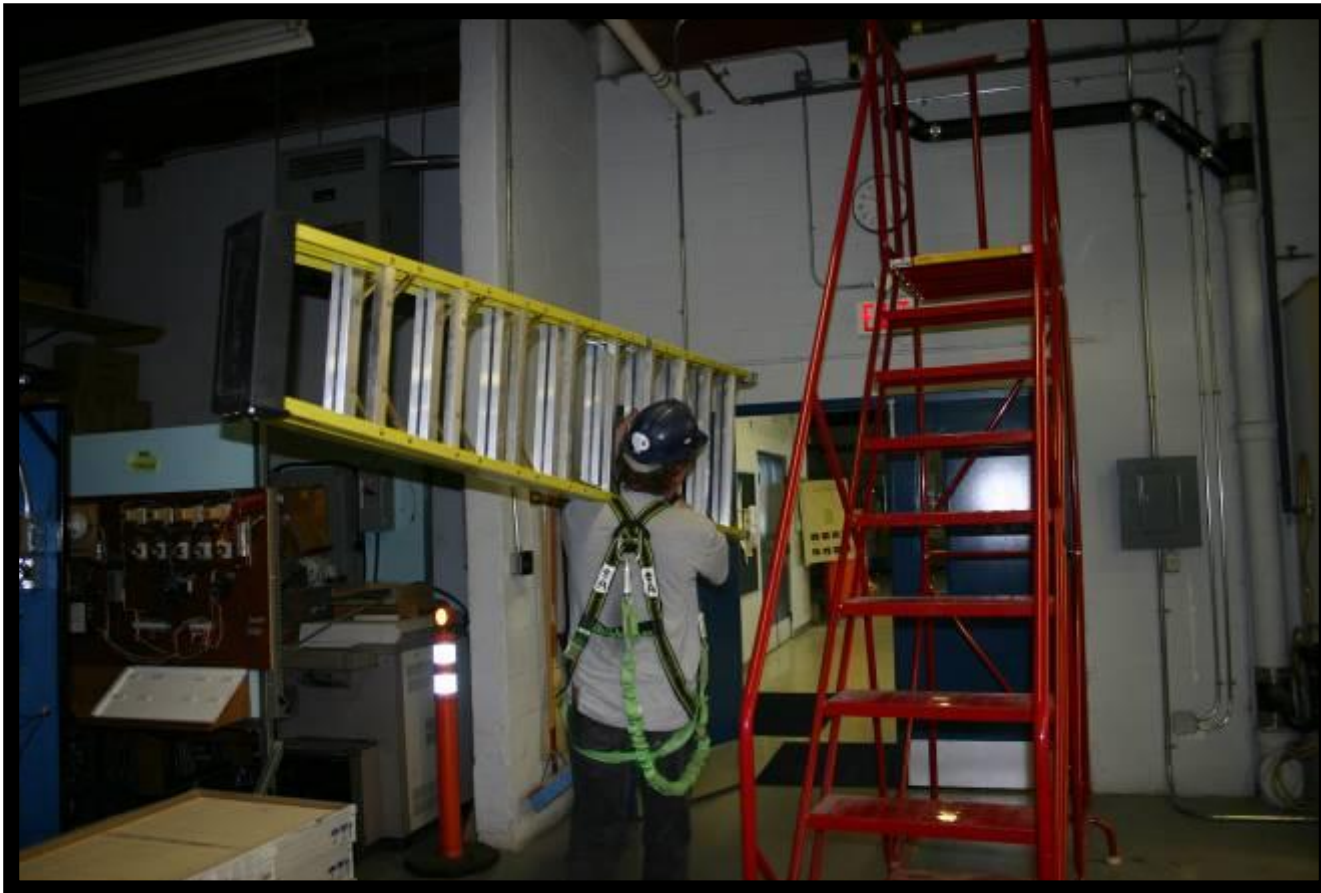
Shuffling Ladders Around Can Cause Injury



Electricians Carry and Work Off Ladders



A Typical Ladder Carrying Posture



Another Reason Electricians At Risk of Back and Other Injuries!



Shuffling Off To Another Job



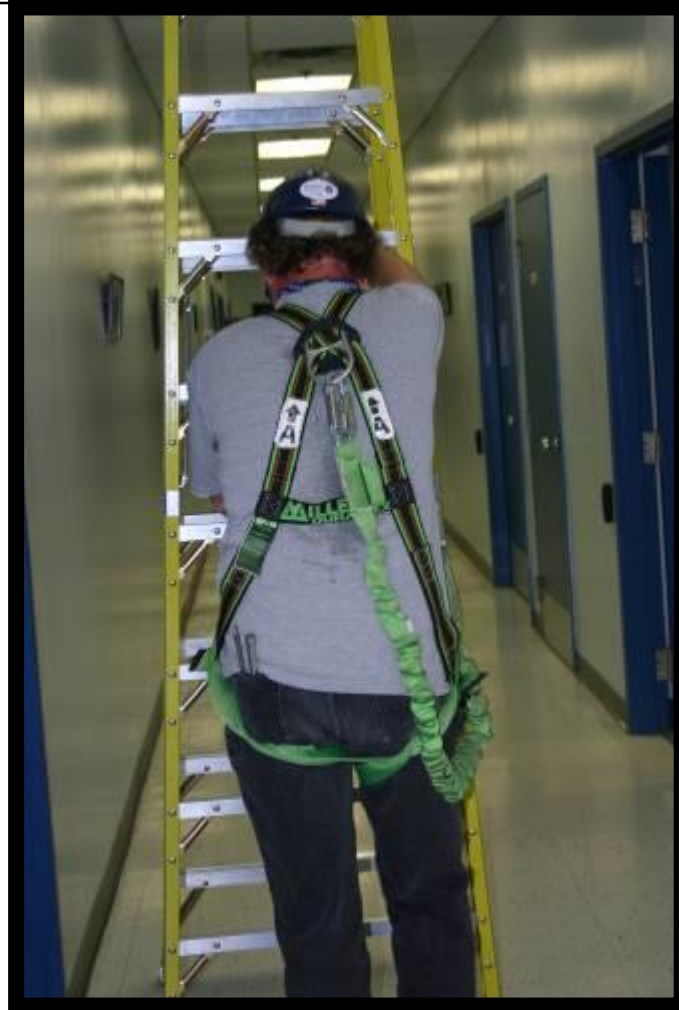
A Classic Ladder Carrying Posture



Erecting Ladder To Access Ceiling



Aligning the Ladder



Time to Get to Work



Finding Access in T-Bar Ceiling



Here We Go Again



The Ergonomist Watching A Master at Work



3-point Contact



Mounting the 10 Foot Giant



Moving Ceiling Tiles to Access Work Area



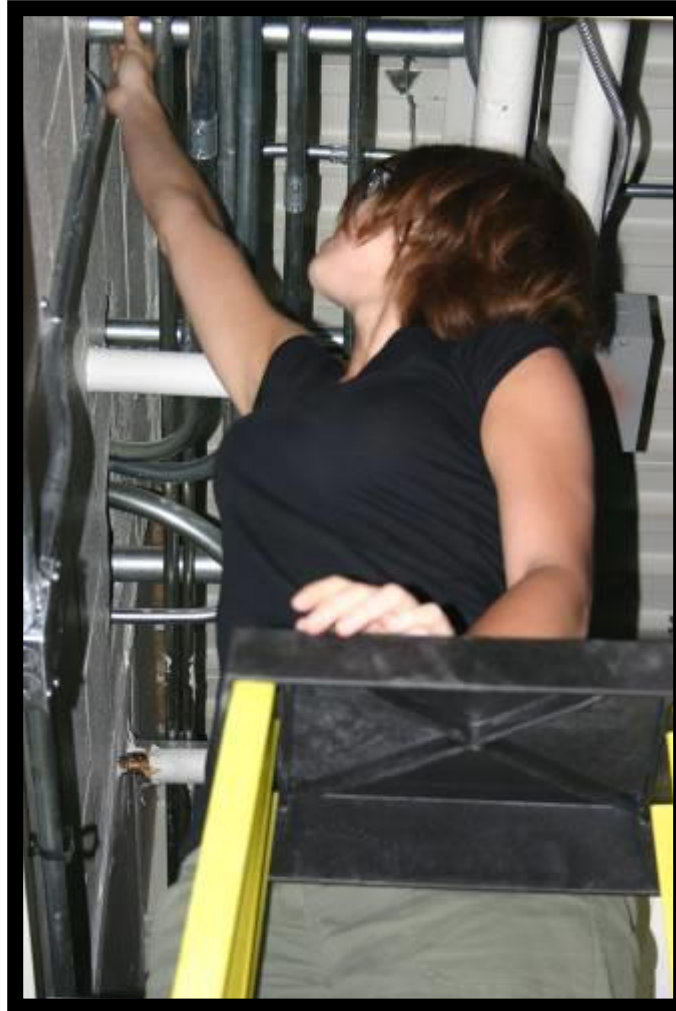
Finding Location of New Pipe Run



Electrician's Job Complicated by Other Mechanical Structures



Ergonomist Eager To Learn What Electricians Do



Ergonomist Discovering How Awkward Our Job Can Be



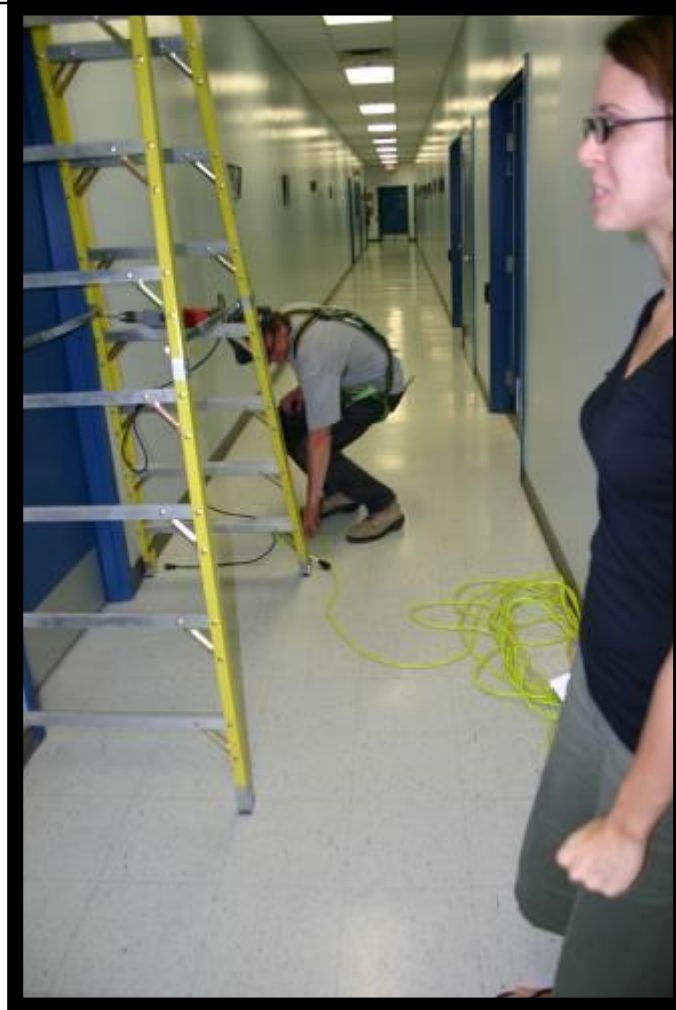
Drilling off Ladders Regular Part of the Job



Getting Power Cord & Drill



Setting Up For Awkward Drilling Job



Setup Very Important to Minimize Trips Up/Down the Ladder



It's Looking Good But Why All the Photo's?



Demonstrating the Depth of Concrete



John Explains Why Job is Difficult in Cluttered Ceilings



Testing the Drill



Working In Ceilings Sometimes Tight



John Demonstrates How Tight Ceilings Are Awkward to Work In



Finding the Connection



Pipe Is Just Where Sal Left It



Drilling in Ceilings a Common Task



Working Around Obstacles



Reaching Up & Over While Pushing a Drill, A High Risk Activity for Injury



WSIB Can Now Better Understand How Electricians Get Injured



Awkward Reach with Force, A High Risk Factor for Injury



Tremendous Force on Shoulders and Arms



Working Outside the Safe Ergonomic Working Zone



Some Employer Reps Claim Electricians Perform Little Overhead Work



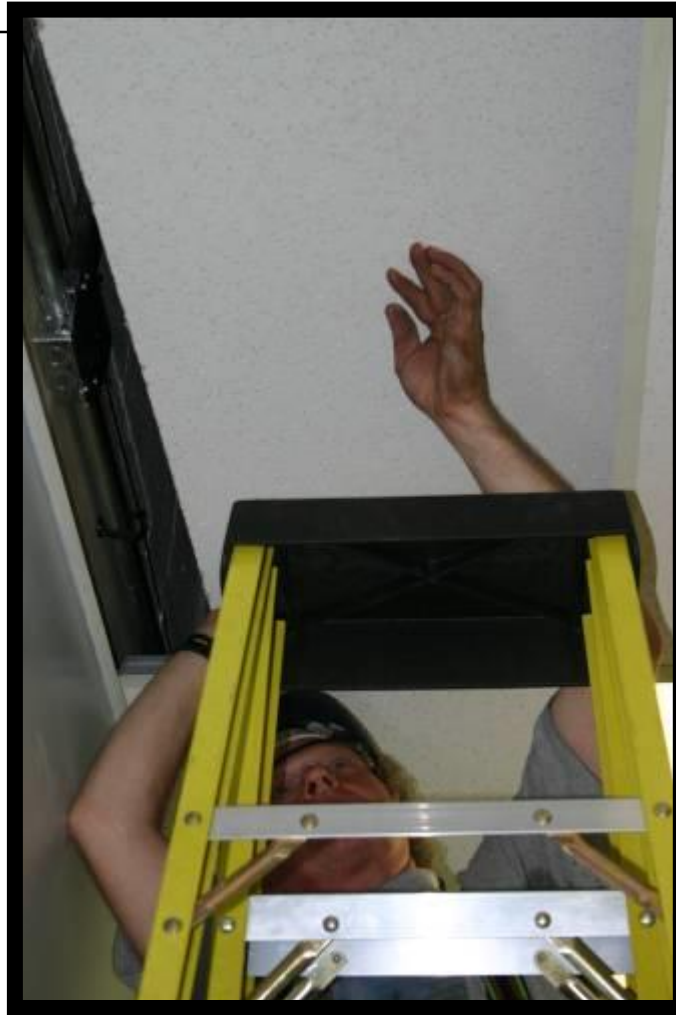
Working on Ladders, Arms Overhead, Pushing a Drill, in Awkward Positions



Finishing the Job



Closing the Ceiling Tile



The Demonstration is Almost Over



John Shows Jennifer his Drill



Ergo Weighing John's Equipment



Demonstrating the Drill & Cord Weight



How to Set-up



Demonstrating Drilling Technique



Through Demonstration and Observation We're Learning What you Do!



Proper Drilling Posture, If You're Lucky



Proper Drilling Posture Taught At School



Unfortunately School and Work are Sometimes Two Different Things



30 Years of Experience on Display

Thanks John!

