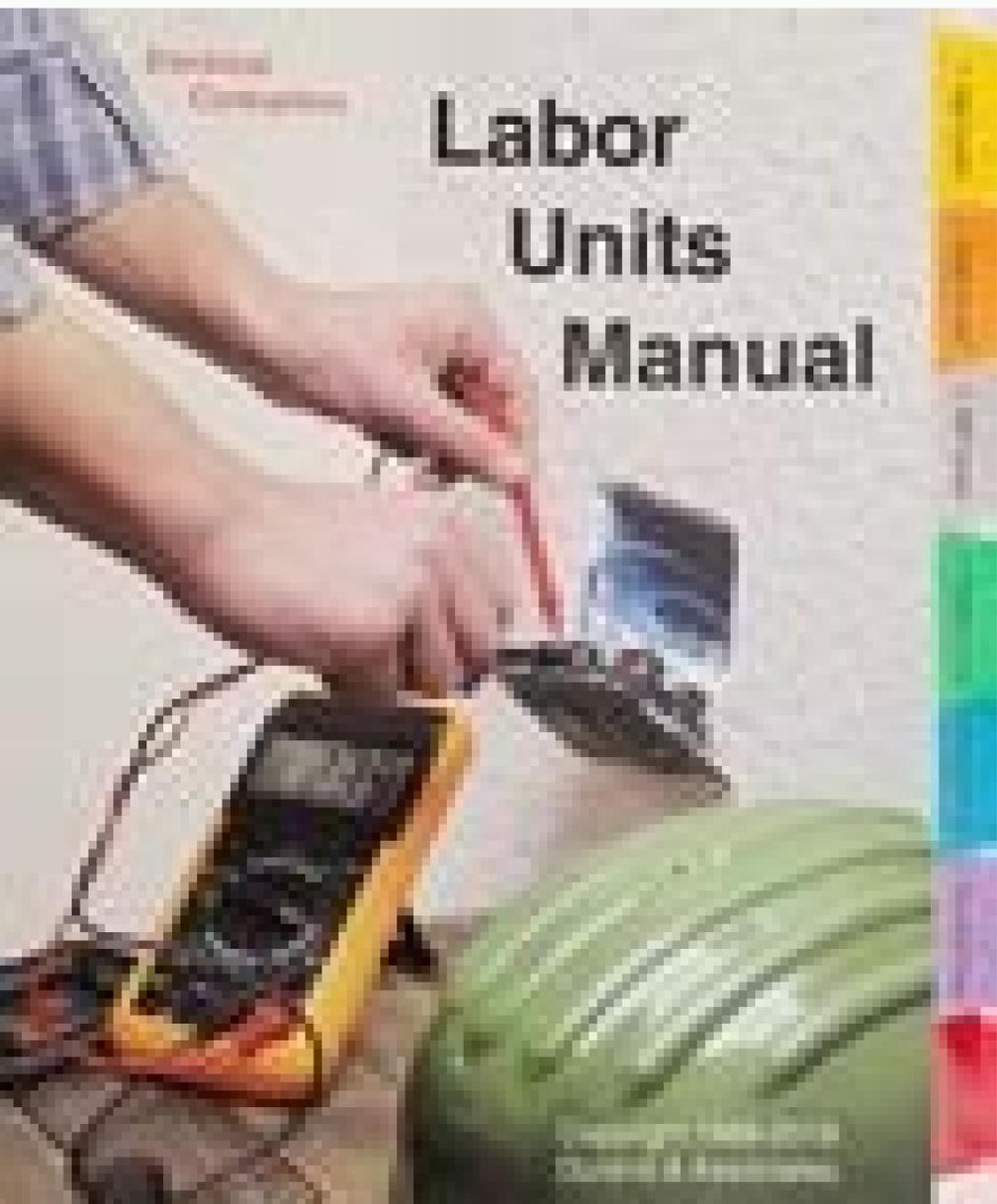


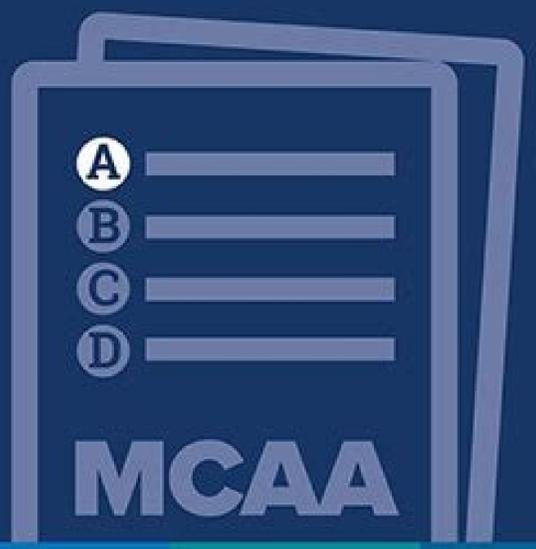
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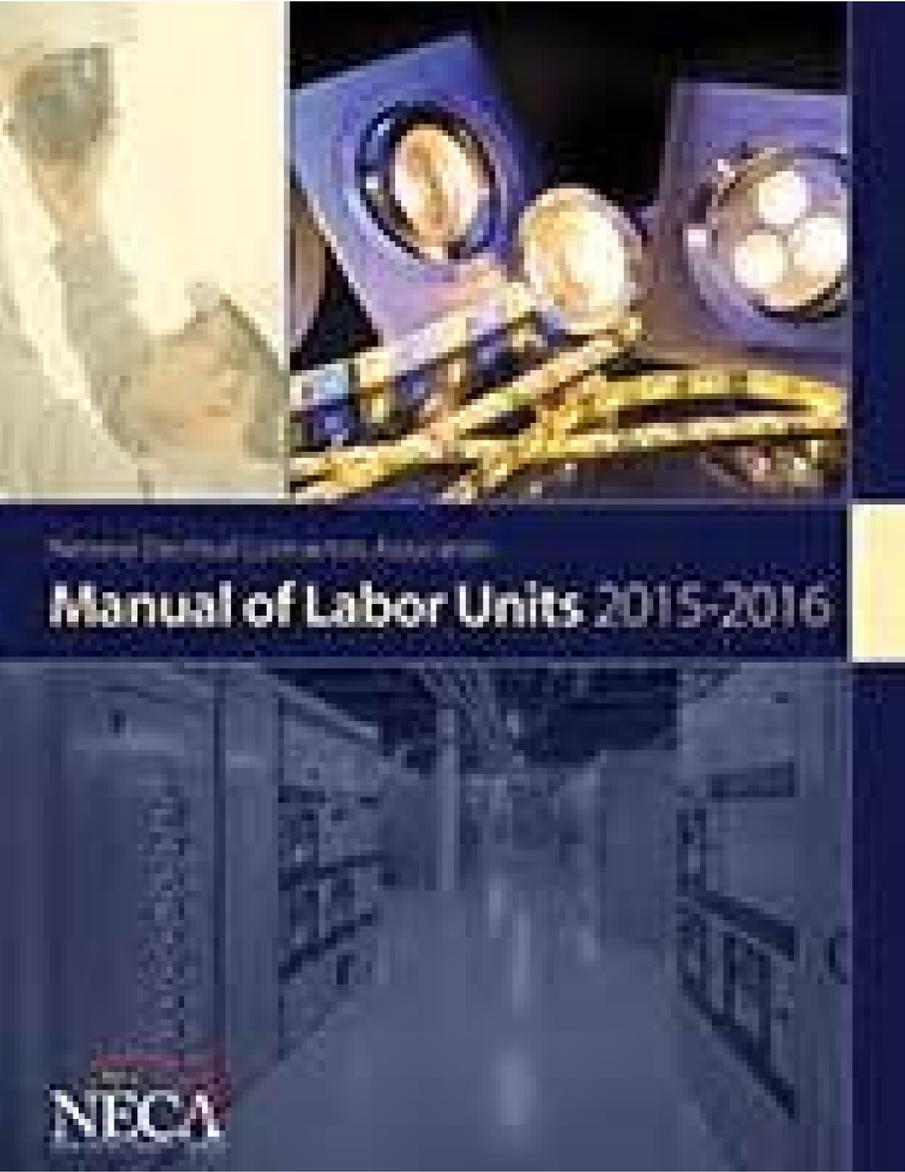
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# Labor Units Manual



## SAFETY TRAINING ANSWER KEY





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After the estimator wins a bid, someone has to produce the project. What are the working conditions? Consider an adjustment factor to compensate for the excess labor required when working in occupied areas. Most contractors will admit that feeders are where they make their biggest profit. My pet duplication is multiple conductors in a raceway. The job's degree of difficulty takes into account the type of project and the working conditions. The company's ability to perform against the labor unit is where many companies either make or break it. The labor units are supposed to include everything associated with that job. \* Tools and equipment are on the job when needed. Consult a labor factoring chart for additional factors. The units are standard as listed but individually interpreted. \* The installation's degree of difficulty. Project management is the answer. It might take 100 hours, it might take 50. It works for some jobs, but not all. that NECA labor units manual runs on the higher end of labor unit manuals but is an industry standard book. Assume that job costing history indicates that each company typically installs this loadcenter in two hours, including breakers. I have a durand & associates labor units manual and it says on the high column that for 2-4" and 2-2" pvc conduits 110ft with 10 couplings each with 20 spacers should be 29 man hours. I recommend the NECA Manual of Labor Units, as these are the benchmark of the electrical construction industry, if the EC added more into that for all those things then it is high. How long have you been an engineer? Information and communication with field personnel is critical. Using a standard set of labor units gives estimators consistency in their estimating. long trench (2-2", and 2-4"). \* The better electricians throughout the company get training support. Which estimator is correct? So vast are the variations in the electrical industry that before selecting a labor unit on any project, the estimator should have standard procedures in place to determine which column in NECA's database to use for a particular estimate. These standards should be rigidly adhered to for consistency. Mounting elevations take into consideration such things as ceiling heights and the floors of a building. [If you would like to obtain a labor factoring chart, send your request by e-mail to jthayer@conest.com, or call (800) 662-7687, ext. Which general contractor and subcontractors will be engaged in the project? Last edited: Jun 24, 2010 Change order/just speculating Change order/just speculating It isn't clear to me what is going on? Time studies for installations on hours per pound are not consistent. For example, two estimators are using the same labor unit to install a load center. The first estimator will apply a 50 percent discount factor to his or her labor estimates, while the second estimator will discount the estimate by two thirds. Competitive construction bidding is one of the biggest gambles in electrical contracting. Unusual weather, both cold and hot, affects productivity on the job. \* The office provides timely administrative support. That labor unit should be multiplied by the hourly rate (which includes labor burden, over head and profit) plus the cost of materials(times mark up) Sounds like this is a change or Add to an existing job in which case an EC will charge you full price for any changes with no sharpening of the pencil like he did on the bid. \* The firm's work is coordinated with the general contractor and all subcontractors. I've been given copies of a couple pages from the NECA manual by an electrician looking to justify an estimate he provided to me. The hours listed in the column are per the unit listed. If you are using rolling staging, an allowance for a ground man to supply and push the staging may be required. This concept allows the estimator to use any of the nationally recognized labor units: NECA's Manual of Labor Units, MEANS, or any of the other databases available today. Each estimator uses the labor unit to his or her own interpretation of its meaning. Whatever you choose, using the prescribed method here will give you accurate estimates. Chris Jensen Last edited: Jun 24, 2010 You read it correctly. The remainder of this article will reference the three labor columns established in the NECA manual: "Normal," "Difficult," and "Most Difficult." It would be impossible to relate all the influences that enter into considering labor units, yet three principal factors affect a labor unit: \* The job's degree of difficulty. The estimator should develop criteria using job experience data for specific equipment. C = 100. The question always comes up, why factor? The specific situation I have is the installation of 4 Sch 40 conduits in a 110 ft. Allocating labor resources is critical. Obviously, the answer is no. I just need some clarification on what the numbers mean and what the units are. At this point, both are. P.S. Welcome to the forum. \* Job progress is properly tracked. Not all difficulty factors add to the labor; some (such as duplication) reduce the labor unit. Under- or over-staffing typically affects the bottom line. It includes , set up, break down, ordering material, picking up material, office work, paperwork, etc, etc. Accurate hours averaged for the entire job are not enough in today's competitive market. Are those the number of hrs./unit? What any of those guideline hours you've quoted don't address is lost time for out of sequence work, difficult job conditions or a general contractor that hasn't bothered to organize the job sufficiently, plus a multitude of other items that can affect his end costs and efficiency, which also includes the time it takes for the change order to be approved. The simple outline below provides general construction classifications in boldface type. If you are pulling four conductors in the same conduit, does it take four times as long as it does for one conductor? Labor units are established for certain construction periods and conditions (usually the most favorable). It reads like you've requested a quotation on some new work that cropped up. He won't know until the job is done, or something else? I just need some clarification on what the numbers mean and what the units are. oh, and it should take 2 guys less than a day to do this if the material was all on site beforehand. \* The company's ability to perform against the labor unit. It is meant to help you to determine the influence on selecting a labor unit for new, unoccupied areas of building construction with suggested NECA columns for each classification in quotes. The estimator must become familiar with the company's productivity. How can several estimators use the same database of labor units if each estimator has an individual concept of what each labor unit represents? The author lists five construction projects below with his suggestions for NECA classifications: - Residential construction includes speculation homes, high-end homes, and apartment buildings. These let the estimator know how the company's labor units compare to the benchmark. Both estimates now arrive at the same labor total, because both adjusted the estimate by factoring in their information from job costing records. (Not all factoring is discounting; it is possible that a markup applies.) Each company should select a database of labor units as its standard, be it published or company-created. Higher temperatures affect workers accustomed to colder climates, and vice versa. Thanks Like fridaymean stated, without seeing the job we can not tell you if the quote is to high or not. The electrician is quoting a labor time of 72 hours, which seems high to me. Job costing factors are then applied, correcting the total labor to represent the company's ability to produce against the benchmark. This factor cannot be analyzed from tables of labor units and is best appraised based on training and experience. Weight is always an important factor in labor units. You didn't mention any 90's or 45's - any in there? The second estimator uses the four hours plus labor units for each installed breaker, arriving at a total of six hours. Use NECA "Most Difficult." Considering that these job types have individual characteristics, it would be ineffective to set up a single-column database that is universally applicable. Use NECA "Normal." - Institutional construction includes schools, hospitals, and asylums. These are just two pertinent factors the estimator must consider when anticipating job conditions. One adjustment factor is like having one column of labor units. Looks like according to the units you provided the EC went on the low end 2 x 27.5 = 55 man hours for the 2-4" conduits @ 110ft not sure what the labor units are for 2" pvc but that leaves 17 man hours for that. 4 Conduit Duct Bank 4 Conduit Duct Bank This installation should take no longer than 24 total Labor Hours which would include spacers in a 4 duct arrangement. Project managers need to know specific labor requirements for each phase and task of the job. Occupancy should sometimes be recognized. The standard labor units (for unoccupied areas) should be increased 50 to 100 percent. In my NECA manual like you said you have a column for Normal, Difficult and Very difficult. Consideration should be given to the number of staging setups that will be in close proximity to each other. \* The right materials are available in the right quantities at the right time. With a more accurate bid, the project manager has documentation for creative management. And the unit "C", is that 100 ft. Most published labor unit databases available today are directly affected by NECA's. The suggested factor would be to add 5 percent per foot for that portion over 10 feet, using one ground man for one top-side electrician. Every electrical contracting firm's productivity starts with management, and management starts with an accurate estimate. Fixtures in the same concentrated area, parallel conduit runs, and conductors in a raceway are all examples of possible deductions for duplication. They are periodically updated to keep current. Remember to include lift rental charges in your estimate. The standard labor unit is increased by 5 percent for mounting elevations over 10 feet and 10 percent for installations of 16 to 20 feet. The installation's degree of difficulty takes into account special installation difficulty factors, such as weather, mounting elevations, weight, occupancy, and duplication. When selecting a software package, consider the job's degree of difficulty, the installation's degree of difficulty, and the company's ability to meet the labor unit as distinct and separate issues. I am assuming he gave it his best estimate. Thanks I am re-opening this thread after a PM with the OPer has clarified that he is an engineer that specializes in waster water treatment plants and works with electrical design. The first distinction an estimator must accept is that a labor unit is not absolute; it is a benchmark, or starting point. Most labor units that you see are for one conductor in a raceway, two men two days if the run and can carry three sticks of conduit at a time and no glue and space the racks really far apart. Equipment manufacturers are a good source for labor requirements on special equipment. It doesn't reflect only how long it should take to do the job. Duplication occurs when multiple installations of like products can save installation time. As far as if that is high or low, the only one that will know is the guy that has to write the pay checks, and pay the material invoices. This can only come through factoring. Why adjust some items up while others are adjusted down? In the manual "C" is for per 100' FT The specific situation I have is the installation of 4 Sch 40 conduits in a 110 ft. The first estimator uses a four-hour labor unit to represent the entire installation including mounting, terminations, and the installation of breakers. With out seeing the job, I cannot speculate as to if his estimate is high or low. Excavation and backfill not included. Use NECA "Difficult." - Industrial construction involves manufacturing facilities and power plants. 316.] For ceiling heights greater than 20 feet, an additional allowance must be made for scaffolding. This comes from studying job costing records. \* Drawings are accurate and marked up, with documentation. Factors to enhance workforce productivity include: \* Submittals are approved in a timely manner. Estimators should obtain weight data on all special equipment. Special projects are performed on sewage and water treatment plants, mines, and foundries. A successful electrical contractor keeps accurate records of job costs and is constantly revising the factors accordingly. For instance, for 4" Sch 40 PVC conduit the numbers under the Normal/Difficult/Very Difficult columns are 25.0, 31.2, and 37.5 respectively. It all comes out in the wash, right? Use NECA "Normal." - Commercial construction involves office buildings, R&D buildings, stores, malls, and theaters. Each column has the labor per 100' (C) And the unit "C", is that 100 ft. This statement may sound odd, but ask yourself, if three electrical contractors undertook the same job, would all three complete the job in the same time? If this is the case, then how can a standard set of labor units work for all three companies? Note today's standard of factoring is based on motorized man lifts for over 20 feet. All increase the labor unit.

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