



ESTIMATING TODAY

March 2007

Mailing and Administrative Office:
2525 Perimeter Place Drive
Suite 103
Nashville, TN 37214

Look inside for
Important
Certification
Information,
page 5

Poor Site Conditions Require Budget with Contingencies on Two Hardcastle Projects



Nashville, Tenn.-based Hardcastle Construction Project photo
See full article in the Project Profile section of this issue.



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Michael E. Downing
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**ASPE is saddened by the death of Robert Weiszman,
CPE, member of the Los Angeles Chapter #1**

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comments are always
welcome. Let us hear from you.
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By John B. Stewart, CPE
ASPE President

ASPE Corner

Recognition Committee

Kevin Fennimore, CPE, chairman of the National Recognition Committee, reports that this past December the General Services Administration (GSA) revised and approved its PER-120 (Professional Estimating

Requirements for Public Building Service). GSA has expanded its estimator qualification provision as follows:

“Although not required, certification by the American Society of Professional Estimators (ASPE) as a Certified Professional Estimator or Cost Engineer by the Association for Advancement of Cost Engineering (AACE), is supporting evidence of an estimator’s qualification.”

GSA has also revised and expanded its Ethics provision:

“The standards of practice described within the Canons of Ethics, published by the American Society of Professional Estimators (ASPE) or the Association for the Advancement of Cost Engineering (AACE International) shall be applied to all estimating services.”

GSA has printed approximately 40,000 copies of the new PER-120 and is in the process of distributing them throughout the A-E Community. The new document will also be available on GSA’s website.

I would like to thank Kevin and his committee and all who participated in this effort for a job well done. I would also like to personally thank Mr. Fred Jang, R.A, ASPE, CSI of Golden State Chapter #2 for all of his help on behalf of our ASPE. Mr. Jang served on GSA’s Cost Advocates Committee and helped GSA’s national office rewrite the PER-120. Mr. Jang contributed his professional expertise on behalf of our ASPE and because of his efforts and those of the Recognition Committee members and others who were involved in this GSA effort; our ASPE has taken another large step forward as the premier organization for the estimating profession.

Boston Chapter #25

Boston Chapter #25 after being dormant for several years has started holding general membership meetings again. Past efforts to get the chapter motivated failed for one reason or another but through the efforts of Northeast Governor Milan Gowen, CPE, and Executive Director Ed Walsh, the chapter has renewed interest and leadership and should be back among the elite chapters of our ASPE in the near future.

I mention this only to point out that with a little effort from within the chapter and help from National, any chapter can

become active and begin growing again. I would urge any member of an inactive chapter who would like to see his or her chapter become more active within our ASPE again to contact your regional governor, Executive Director Ed Walsh or even myself. The help is out there; all you have to do is step up to the plate and show a willingness to help your chapter become bigger and stronger. It does not happen overnight, but if you are willing to put a little time and effort into rebuilding your chapter, then we at National are ready to offer our assistance.

2007 Convention


Just another reminder to reserve July 12-14 to come and meet with your fellow ASPE members in Park City, UT at our ASPE National Convention. I have been assured that a great time has been planed for all who attend. So please mark your calendars and reserve the time and help make this year’s convention one of the best.

BOT Meeting

The Board of Trustees will be meeting in the Society Business Office in Nashville March 30-31. The Standards and Education boards will be holding their meetings at the same time in the SBO, so if you are not afraid of crowds and you are in the neighborhood, please stop by and say hello. ●

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TO ALL - -

AMERICAN SOCIETY OF PROFESSIONAL ESTIMATORS – **Certified Professional Estimators (CPE's)** *The Certification Board Needs Your Help.*

The Certification Board was in the process two years ago of obtaining accreditation for our certification program, however, due to financial problems at that time, we had to discontinue the process. The cost for the accreditation process is as follows:

1. Membership in the Council of Engineering & Scientific Specialty Boards will be required before they will consider accrediting our Certification Program. The cost of membership will be \$ 5,000.00, annually. (This is just to be a member of the board)
2. We will be required to attend the annual meetings, a cost of about \$1,000 annually.
3. There is no additional cost to apply for, or be granted, accreditation.
4. We will be required to maintain our membership.
5. Therefore, we will need to have at least \$ 25,000.00 in the fund in order for the Certification Board to apply for, and maintain, our membership in CESB for a period of at least five years.

The fund's balance as it exists today is \$ 1,181.00. Some of the CPE's have already donated to this fund. **I am asking all approximately 510 CPE's to donate \$ 50.00 each.** This would raise \$25,500.00 for the accreditation fund. If you can donate more to this program we, the Certification Board and your fellow CPE's, would be very grateful for whatever you can afford to give to this cause.

Accreditation is the ultimate goal in any certification program. The society business office has established a separate fund for this endeavor and will not be touched by any reason other than the accreditation. We will have a gauge to inform all the CPE's in the society in each newsletter to inform them as to balance of the monies that have come into the fund for accreditation in our monthly newsletter. I have been asked by the Certification Board past chairperson to keep this process going.

Next newsletter I will also ask for corporate help as our society is a 501 (c) 3 tax status. Corporations that donate to this cause may claim as a charitable contribution on their taxes.

Bill Manfredonia, CPE
ASPE Certification Board Northeast Region Representative

Certification Program Moves to Self-Paced Process

ASPE's Certification Board has begun implementing a number of changes to the certification process that board members believe will make certification easier and expand the number of members seeking certified professional estimator (CPE) status.

Applicants for CPE status can now apply and participate in an online workshop. Henry Whidden, CPE, Certification Board chairman, says that under the old system, it could take applicants anywhere from one to two years to obtain certification. The Certification Board is in the process of exploring finding a way for CPE candidates to take their exams electronically. Although the logistics still need to be worked out, the Certification Board hopes that candidates will be able to go to a location to complete their tests electronically.

The Certification Board, at its January meeting, voted to void all current testing schedules and consider a new system in which the process will be run in two cycles per year, with the exception that those applicants who are in the process will remain under the current schedules. An applicant will have a choice of starting the process on a specific date and completing the cycle within 180 calendar days. The new system will be presented to the Board of Trustees for their review, comments, and approval at the March board meeting.

The Certification Board needs more ASPE members to commit to reading and scoring the certification papers in a timely way. ASPE requires papers to receive two readings; if the paper receives a "passing" grade from two reviewers, the candidate can then move on to take their discipline-specific (DST) and GEK exams. If their paper receives one pass and one fail, a third reader is brought in to break the tie. "We need more commitment to the expeditious reading of papers," Whidden says.

ASPE members interested in reading papers must already have achieved CPE status. They can contact Sue Parrish at the Administrative Office if interested.

The Certification Board would like to publish more of the exemplary certification papers, either in *Estimating Today* or on ASPE's website. Patsy Smith, ASPE's director of administration, says that ASPE currently is in the process of upgrading its website, but that process has slowed due to lack of funds. "We're at the point where we are needing to progress, but there are cost factors involved," Smith says.

To find out more about certification or to get involved, contact Sue Parrish at the Administrative Office, (615) 316-9200. ●

The ASPE staff thanks the members of the Certification Board for their donation of a new laser desk printer



Certification Board at the ASPE Administrative Office for January, 2007 meeting.

Front Row – Sue Parrish, Certification Coordinator; Bill Manfredonia, CPE

Back Row – Frank Kutilek, FCPE, ASPE First Vice President; John Stewart, CPE, ASPE President; Walt Lemon, CPE, Ron Svarc, CPE, Henry Whidden, CPE, Chairman.



Project Feature

Poor Site Conditions Require Budget with Contingencies on Two Hardcastle Projects

By Pam Hunter

Poor site conditions and an old existing building on the project site with old sewer lines and piping required Nashville, Tenn.-based Hardcastle Construction to include a number of contingencies in its estimates for two projects for Akzo Nobel Powder Coatings, Inc., which is moving its North American headquarters from Cleveland, Ohio to Nashville. The two projects came on the heels of a successful warehouse project for the client on the site.

The client “knew that there had to be contingencies because you can’t hard-dollar estimate something you can’t quantify and identify in an absolute sense,” says Mark Bischoff, CPE, site project manager and superintendent. “We knew [the site conditions] were going to be bad, but we didn’t know how bad, so we came up with a number between absolute worst case and absolute best case,” he says.

Hardcastle competed against two other contractors to win the initial project with the best qualified bid for a 20,000 square-foot warehouse facility. The project, a pre-engineered metal building, cost \$1.4 million and took 10 months to complete, with all work completed in February 2006.

Hardcastle’s success on the warehouse project resulted in two other Akzo Nobel projects for the general contractor: a \$960,000 research and development laboratory, and an approximately \$2.2 million, approximately 11,000-square-foot, two-story corporate office facility for the new headquarters building. Hardcastle broke ground on the research and development lab project in May of 2006 and completed the project in January 2007, and is currently working on the office building project. The office building project is expected to be complete by August 2007.

According to Rick Arnold, project manager, the poor site conditions have been the primary challenge for both construction and developing a price for the project. The second two contracts are cost-plus, he says, in which Hardcastle will receive payment for the cost of each job plus a fixed fee negotiated with the client.



“We’ve had site problems on everything we’ve constructed out there, including the inside work, because when we cut the floor, there was soft soil underneath the footing system that was going to be put in underneath a load-bearing wall,” Arnold says.

Bischoff adds that for all three projects, “there were higher than normal levels of unknowns and contingencies” because of 30 years of an uncontrolled fill situation in which non-engineered fill was placed on the site by the company that owned the property before Akzo Nobel bought it. Moreover, old pipes and sewer lines from an existing building on the property

“We knew [the site conditions] were going to be bad, but we didn’t know how bad, so we came up with a number between absolute worst case and absolute best case,”



built in the mid-1940s required Hardcastle to make repairs, or in some cases, complete replacements.

“We knew there were problems; we just didn’t know the extent of them until we actually started excavation,” Bischoff says.

The team that developed the estimates—primarily Arnold and Bischoff—relied on findings from geotechnical work done on site, as well as some physical evidence that showed levels of deterioration in some sample material from the existing building and input from subcontractors to develop “educated guesses” about the range for the budget contingencies, Bischoff says.

Arnold adds that Hardcastle developed several estimates on each project for the client over the course of the three projects to get the price more in line with what Akzo Nobel wanted to pay. That required going back to

subcontractors for more input and changing specifications for materials and construction processes that were less costly.

“We met with the architects [architectural firm Adkisson Harrison & Associates in Nashville] engineers and owner throughout the whole design period, and did direct them to more cost-effective solutions,” Arnold says.

The structural engineers on the project were Logan/Patri Engineering, Inc. The civil engineer was Lukens Engineering Consultants. The electrical engineer was MCH Engineering C/O S & A Electrical LLC. The mechanical engineers were NJC Incorporated C/O Dillingham & Smith

Bischoff notes that Akzo Nobel knew going in to the project that existing site conditions were poor, and the cost of working with those conditions was not immediately quantifiable. “They knew that some portions of the estimate had to be done this way,” he says. “We’ve had an excellent working relationship with Akzo Nobel throughout these projects.”

Bischoff is a long-time member of ASPE and currently serves as president of ASPE Chapter 34 Middle Tennessee. He is a charter member of that chapter. ●



ASPE Chapter Meetings

ARIZONA, Chapter 6

2nd Tuesday of the Month • Check with Chapter for Times • Doubletree Guest Suites 320 44th St., Phoenix, AZ

Joel K. Smith CPE (480) 784-4356

OLD PUEBLO, Chapter 53

3rd Wednesday of Each Month • 5:30 Cocktails - 6:00 Dinner & Program

Inn Suites • 475 North Granada Ave Tucson, AZ

Christopher Kraft CPE (520) 621-7546

ARKANSAS, Chapter 33

3rd Friday • Noon Powers of Arkansas 1111 West 6th Street, Little Rock, AR

Bruce A. Faught CPE

LOS ANGELES, Chapter 1

4th Wednesday • 6:30 PM Cocktails

7:00 PM Meeting • New Otani Hotel

Joe Miller CPE (213) 637-9146

SACRAMENTO, Chapter 11

2nd Tuesday • September thru May 6:00 PM

Buggy Whip • 2737 Fulton Ave

Sacramento, CA

George E. Leighton CPE (916) 444-3700

SAN DIEGO, Chapter 4

3rd Tuesday of Each Month • 5:30 Social -

6:30 Program • Butcher Shop • 5255 Kearny

Villa Rd., San Diego, CA

Larry Hendrick CPE (858) 679-2578

GOLDEN GATE, Chapter 2

Douglas J. Bibby CPE (510) 525-9499

ORANGE COUNTY, Chapter 3

Contact Chapter for Meeting Days

5:30 Social Hour - 6:00 Business - 6:30

Dinner/Speaker • Holiday Inn Coasta Mesa

3131 S. Bristol St., Costa Mesa, CA

Ronald P. Svarc CPE (949) 863-4266

SANTA CLARA VALLEY, Chapter 55

4th Tuesday of Month • 6:00 Social - 7:00

Dinner, 8:00 Program • Lou's Village • 1465 W.

San Carlos St., San Jose, CA

Juan Barroso E (408) 244-7100

DENVER, Chapter 5

2nd Tuesday • September thru May • 5:30 PM

Social, 6:30 PM Dinner, 7:30 PM Program • Red

Lion Hotel • 4040 Quebec St, Denver, CO

Ralph Kasper CPE (303) 363-7101

NUTMEG, Chapter 60

2nd Wednesday (No Meeting in July or August)

• 6:00 Social - 6:30 Dinner • 7:15 Meeting •

Branningan's Restaurant

176 Laning Street (I-84, Exit 32), Southington,

CT

Kenneth A. Woodward CPE (203) 865-6043

YANKEE, Chapter 15

Milford/Stratford Area TBD

Kevin G. Wood CPE (203) 876-8331

DELAWARE, Chapter 75

2nd Wednesday of Each Month except July &

August • 5:30 Cash Bar - 6:30 Dinner - 7:30

Speaker Christiana Hilton Hotel Newark, DE

Richard M. LeBrun, Jr. E (302) 737-7042

GREATER D.C., Chapter 23

Contact Chapter for Meeting Info.

Mark L. Scribner CPE (301) 317-6415

CENTRAL FLORIDA, Chapter 50

Contact for Meeting Info.

GOLD COAST, Chapter 49

3rd Tuesday • 5:30 PM Social - 6:30 PM

Meeting • Ft. Lauderdale / Hollywood Holiday

Inn • Just West of I-95 off the Sheridan St. Exit

Thomas A. Robinson E (954) 772-7285

TAMPA BAY, Chapter 48

Third Thursday of the Month

(Minor Changes during Holidays) • 6:00

Program Comfort Inn • 820 Busch Blvd, Tampa,

FL

Michael W. Benton CPE (727) 992-4608

ATLANTA, Chapter 14

Odd Numbered Month @ 6:PM • Even

Numbered Month @ 12:00 Noon • Social Time

30 mins prior to meeting • Cross Creek Cafe •

1221 Cross Creek Parkway, Atlanta, GA

Charles R. Cofer CPE (404) 848-5973

CHICAGO, Chapter 7

Check with Chapter for Meeting Day • 6:00

Social - 7:00 Dinner - 8:00 Meeting • Beau Jolle

by Victoria • 9950 West Lawrence Ave, Schiller

Park, IL

Melvin D. Cowen E (847) 438-2777

CENTRAL INDIANA, Chapter 59

3rd Thursday

Contact Chapter for Times & Location

Gary F. Faust AF (317) 326-7799

OLD FORT, Chapter 65

Last Thursday of Month • Noon or 5:30 PM

The Elk's Lodge • #155 4935 Hillegas Rd, Ft.

Wayne, IN

Aldis J. Lamos E (260) 747-1791

CEDAR RAPIDS AREA, Chapter 74

No Meeting Info

DES MOINES AREA, Chapter 73

3rd Thursday of the Month • 5:30 Cocktails -

6:30 Dinner - 7:00 Program • Various Locations

Denise K. Parker E (515) 264-8825

QUAD CITIES, Chapter 71

4th Tuesday of Month • Sept. thru May 6:30

Dinner - 7:30 Program • Steeplegate Inn

Davenport, IA

Robert S. Guild CPE (563) 285-2565

NEW ORLEANS, Chapter 9

Contact Chapter for Meeting Info.

Huey P. Breaux FCPE (504) 835-7200

MAINE, Chapter 37

Contact Chapter for Meeting Info. • 5:00 Social

- 6:00 Dinner - 7:00 Program

Alternate btwn Portland and Lewiston Area

George L. Liming CPE (207) 772-2888

BALTIMORE, Chapter 21

3rd Thursday of month • 6:00 P.M.

Locations Vary

Stuart Allan Shad CPE (410) 910-2879

BOSTON, Chapter 25

Last Tuesday of Month • 6:30 PM • Contact

Chapter for Meeting Info.

John C. Nitchie E (978) 664-9500

DETROIT, Chapter 17

2nd Thursday of each Month

Location Varies

Richard D. Schwarzinger CPE (248) 322-5523

WESTERN MICHIGAN, Chapter 70

3rd Thursday of month (Posted on

www.aspewmich.org) • Builders Exchange of

Grand Rapids & West. MI

Brian VanBeveren ASM (616) 285-6933

VIKING, Chapter 39

No Meeting Info.

HEARTLAND, Chapter 32

2nd Tuesday of Month • 5:30 Cocktails - 6:30

Dinner - 7:30 Program • Hereford House 20th

& Main, Kansas City, MO

W. Jeff Winslow CPE (913) 747-0530

ST. LOUIS METRO, Chapter 19

4th Thursdays (No Meetings in Dec., June, July,

August) • 5:30 Social - 6:30 Program - 7:00

Dinner • Maggie O'Brien's • 2000 Market Street,

St. Louis, MO

Daniel Renick Davenport CPE (314) 919-2226

GREAT PLAINS, Chapter 35

2nd Wednesday of the Month • 11:30 Luncheon

Meeting • Jericho's • 11732 West Dodge Road

Jerome F. Onik E (402) 341-9121

LAS VEGAS, Chapter 72

2nd Thursday of the Month • 6:00 PM

Desert Pines Golf Club • 3415 E. Bonanza Rd.,

Las Vegas, NV

Kent Koehler E (702) 495-6419

RENO, Chapter 12

2nd Wednesday of Every Month • Call for

Program Times • Atlantis Casino Resort Spa

3800 S. Virginia, Reno, NV

Joseph A. Flemming CPE (775) 353-7092

GARDEN STATE, Chapter 26

4th Tuesday (Jan - Oct) • 3rd Tuesday (Nov &

Dec) • No Meeting (July & Aug) • 6:30 PM

Social * 7:00 PM Dinner * 8:00 PM Topics •

Pal's Cabin • 265 W. Prospect Ave, West

Orange, NJ

Alex MacKenzie E (973) 897-8798

ROADRUNNER, Chapter 47

Contact Chapter for Meeting Info.

Glynnette Hale CPE (505) 344-3461

NEW YORK, Chapter 10

Contact Chapter for Meeting Info.

Arnie Weitzman CPE (914) 592-1155

EMPIRE STATE, Chapter 42

3rd Wednesday of Each Month • Contact

Chapter for Times • Butch Block Restaurant

Central Ave., Albany, NY

Mark D. McClenahan E (518) 272-2541

WESTERN NEW YORK, Chapter 77

3rd Thursday of January, March, May, July,

September, & November • Contact Chapter for

Time • The Compton Company Inc • 2400 Rt.

64, Bloomfield, NY

William R. Compton CPE (585) 657-7041

...meetings continued on next page

NORTHEAST OHIO, Chapter 28

3rd Tuesday • No Meetings in July or August
 5:45 Social - 6:15 Dinner - 7:15 Program
 Dimitri's Restaurant • 1830 Snow Rd., Parma, OH
 Derrick L. Griffin E (216) 619-1700

SOUTHWESTERN OHIO, Chapter 38

Bi-Monthly on 4th Thursday • Contact Chapter for Time • ACI • Lockland, OH
 Daniel G. Frondorf E (513) 706-7403

COLUMBIA-PACIFIC, Chapter 54

3rd Tuesday (No Meetings in Dec.) • University Place • 310 SW Lincoln, PSU, Downtown Portland
 Dave Fitzhugh ASM (503) 285-7100

GREATER LEHIGH VALLEY, Chapter 41

No Meeting Info

CENTRAL PENNSYLVANIA, Chapter 76

2nd Wednesday of the Month (No Meeting in July & August) • 6:00 Social - 6:30 Dinner
 Park Plaza Centerville
 Jerry Long E (717) 445-7130

PHILADELPHIA, Chapter 61

3rd Wednesday • 6:30 PM Doubletree Hotel Plymouth Meeting, PA
 Terrence P. McGeehan FCPE (215) 643-0867

THREE RIVERS, Chapter 44

Contact Chapter for Meeting Info.
 Mary F. Crawford CPE (412) 823-0400

SOUTHERN NEW ENGLAND, Chapter 31

Contact Chapter for Meeting Info.

MEMPHIS, Chapter 62

No Meeting Info
 Douglas E. Warren CPE (901) 230-5487

MIDDLE TENNESSEE, Chapter 34

Contact Chapter for Meeting Info. Mark L. Bischoff CPE (615) 254-6512

EAST TENNESSEE, Chapter 56

No Meeting Info

DALLAS/FORT WORTH, Chapter 43

3rd Thursday of Month • 6:00 Dinner
 AGC/Quinn Building • 11111 Stemmons Frwy, Dallas, TX 75229
 Frank Haas CPE (972) 241-4242

HOUSTON, Chapter 18

2nd Monday of each Month • 6:00 PM to 8:00 PM Location Varies
 Brenda Brady Ledbetter CPE (832) 201-2570

RIO GRANDE, Chapter 40

Contact Chapter for Meeting Info.
 Hector R. Contreras CPE (915) 276-0560

SALT LAKE CITY, Chapter 51

3rd Thursday • 5:30 PM - 7:30 PM • Mountain Land Area Planroom • 583 W 3560 S, Ste. 4, Salt Lake City, UT
 Shaun Robbins E (801) 983-5233

PACKERLAND, Chapter 66

1st Thursday after 1st Wednesday of Month
 5:30 Social - 6:15 Dinner & Program • Liberty Hall Kimberly, WI
 Michael R. Mueller E (920) 257-2169 ●

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Confessions of a Construction Defect Litigation Expert

By Don Waller, CPE

There are many definitions of construction defects. The three that most will agree to are: 1) Violations of the applicable building code, 2) Violations of the standard of care and 3) Faulty installation. “Ugly” is not a defect.

There are two types of defects: latent and patent. Latent defects are defects that become apparent over time. For example, a leak in a roof or a deck may not be noticed for several years. An example of a patent defect would be an acoustical problem. The two types of defects fall under different statutes of limitation, or the amount of time that legal recourse can be sought from the time that the defect is identified.

Most construction defect litigation cases start as a result of water intrusion. Let's do a thumbnail sketch of a typical case. The owner of a new building discovers roof leaks. In the majority of cases, the owner will call the builder for repairs. If this does not produce satisfactory results, an attorney will be retained. An attorney will call for an expert opinion, an architect or a general contractor, for example. The expert will usually be asked to do an overall evaluation of the building or project. If additional problems are obvious to the expert, a team of experts may be retained. A typical team will start with an architect and a cost estimator. That team may expand to include a civil engineer, a soils engineer, a mechanical engineer, a roofing expert, etc., etc. For any aspect of a building that you can identify, there's an expert. I even know an expert on experts! If the definition of a consultant is, “Somebody who tells you something that you already know at a price you can't afford,” then an expert is, “Somebody who tells you something you don't *understand* at a price you can't afford.”

After all experts have completed their investigations, they will produce

written reports that will explain the nature of the defect and the repair recommendation. These reports will be sent to a cost estimator who will draft a “Cost to Repair Estimate” based solely upon these reports. The cost identified on this estimate will be the requested sum that will be asked for in the suit filed by the attorney in the form of a demand. The costs of the experts, attorneys and other costs may be reimbursable depending upon the state where the suit is filed. I'm glossing over many legal and insurance issues that are not within my area of expertise. I have a tacit understanding with the legal community . . . I won't give legal opinions and they won't give estimating opinions.

When these demands are presented to the builder/defendant, the builder will hire its own team of experts to refute or confirm or just bicker about the findings of the plaintiff's experts. The builder may file suit against the subcontractors he hired to build the building/project. The subcontractors will hire their own counsel, and some will hire their own experts.

The court, along with the attorneys, will draft a “Case Management Order” to determine deadlines for the production of reports and a trial date. They will also appoint a mediator or Special Master to referee this process. Sooner or later, after everyone has exchanged information, a mediation session will occur under the direction of the court-appointed mediator. The mediation process is much like “Let's Make a Deal,” the well-known TV show. The first mediation is referred to as a “Show and Tell.” The plaintiff side will put on a presentation with as many pictures and facts as possible. The process is about the money.

A few years ago I worked for a large Japanese company that had some major problems with its corporate headquarters. These Japanese

executives didn't want to talk about a financial settlement; they wanted the builder to be “honorable” and fix the problem. It took the mediator, the attorneys and all of us experts to convince these executives that that was not an option; they had to settle for money.

The vast majority of these cases settle before trial. If they don't settle early in the mediation process, depositions begin. A deposition is conducted with a court reporter, and the deponent is sworn in under the penalty of perjury. The depositions start with the plaintiff/owners and move on to the plaintiff experts. The burden of proof of defective construction is on the plaintiff. Eventually the builders, their experts, the subcontractors and just about everyone remotely connected to the case will get deposed. The attorneys that represent the interested parties typically attend an expert deposition. At one of my depositions, I had 42 attorneys in attendance. Being an expert is not for the timid. If you let yourself be called an expert, you deserve to have all of your opinions (and your mental competence) questioned. When the settlement process fails, the case goes to trial. Trial is war with the attorneys playing the generals and the experts are the soldiers. They don't actually try to kill the experts, of course, they just try to kill their reputations. In my experience, juries are usually very capable. They may not understand all of the technical testimony, but I think they can usually tell who is incompetent or dishonest.

Let's talk a bit about the people involved in the litigation process. There are those who are convinced that attorneys are corrupt and greedy, and that experts will testify to anything for their fee. In my experience (almost 25 years) as an expert, the vast majority of these people are hard-working and conscientious.

There are some attorneys who will try to prompt an expert's opinion. As an expert, the only thing you really have at the end of the day is your reputation. I make my own mistakes; I don't need any help from an attorney. As an expert, if you let an attorney prompt your testimony, they may love you for it at the time, but they won't respect you in the morning. If you plan on making a living from being an expert, be careful in choosing who you work with. Don't work with attorneys or experts whom you do not respect. Their reputation may become your reputation.

I feel very fortunate to be able to make a living as an expert. I work with interesting people, learn about all phases of construction and engineering and get to match wits with some very bright attorneys. Getting paid to argue with attorneys . . . it doesn't get any better than that!

If you want to be an expert, prepare for it. The ASPE has been a great help to me. Become a CPE; get a contractor's license. Invest in research about your topic. I've never met anyone who could "wing it" without getting caught. There are a lot of really bright attorneys and experts who will hang you out to dry if


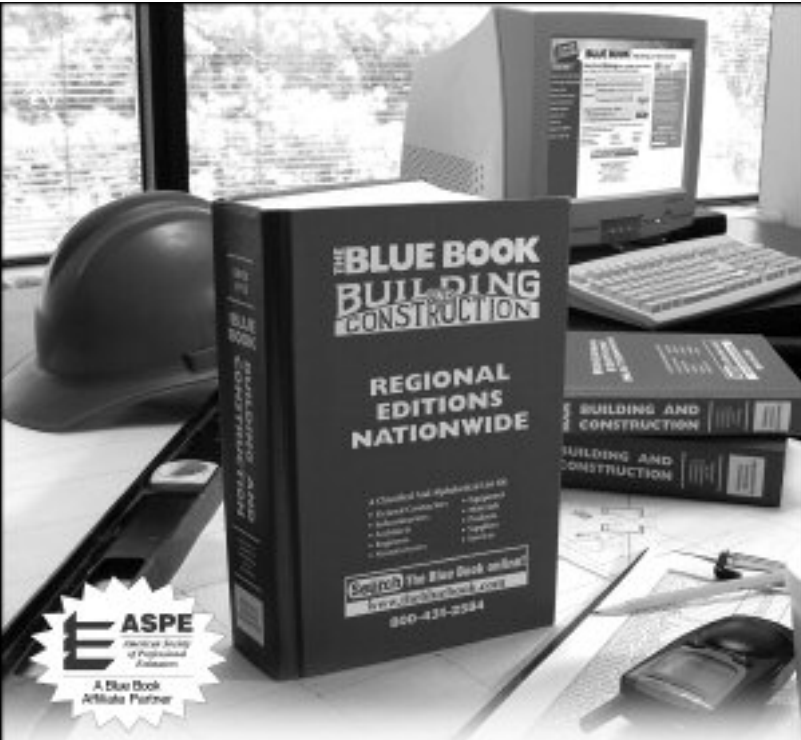
your opinions and credentials are not to a high standard. When (not if) you make a mistake, own up to it. Hire the best employees that you can find; these are people who will make you appear smarter than you really are.

Always remember that the word "expert" is a title, not a statement of fact. ●

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By Ed Walsh, ASPE Executive Director

From the Executive Director

As you read this the first flowers are starting to bloom in most of the United States, the ice is beginning to thaw and the grapefruit league of spring training baseball has started up. I welcome this time of year as a chance to set the stage for the spring and summer ahead.

I wanted to say something I wrote last month in a different way. If ASPE is to be the organization we all want, it has to start at the individual level. This means each member must consider it an obligation of membership to not only bring a prospective member into the Society, but also to take on a leadership role and help move his or her chapter forward.

We have increased our marketing efforts a good deal in the last few years, but all the marketing implemented by the national office or individual chapters means little if we are not operating on a grassroots level. Ask members who have recruited fellow estimators, and they will tell you it means a great deal.

As I mentioned in January, we are embarking on some new “tech savvy” opportunities that we think will lead to more industry recognition and new members. We plan to begin offering “webinars” as soon as we can, as many other associations have started doing. We will also be using our new blast e-mail system to contact members and to keep them informed on a more regular basis. One thing we hope to do is speed up the process of communications between the national activities and your local activities.

In January we had a booth at the World

of Concrete, which is the industry’s biggest event. I really want to thank the members who volunteered to help me “man” the booth. In February, I was at the mid-year meetings of the BX Network, which is a fairly new group. The BX Network is an association of plan rooms around the country with whom we have a strategic relationship (<http://www.BXnetwork.org>). In late March we’ll have our national Estimating Academy with AGC again, this time in San Antonio. In addition, the Society will have a booth at the ABC Convention in Nashville.

We have sold our first booths for the National Estimating Academy and Convention this summer in Park City, UT. Many thanks to our sponsors; they help us keep the costs down for attendees.

I am truly proud to be the point man marketing the event and selling sponsorships. I would suggest you all get online and check this place out; those of you who plan to attend are going to love Park City. I encourage our members to strongly consider informing their companies that display booths and sponsorships are available and STRONGLY requested. This is a great way to show their appreciation of the Society and to give back to the organization. Some companies might want to send an HR representative to meet some tremendously talented potential employees.

The numbers are up again on our website employment pages, and next month’s edition of Estimating Today will focus on the shortage of estimators around the industry.

Do you have a particular passion for one segment of the industry? Do you have great information to share and do you have maybe one hour per month to oversee a “SIG” (special interest group)? Please let me know. We have sponsors ready to jump into the activity just as soon as a SIG is set up. We are seeking out leaders to help run our

“SIGs.” Please contact me.

I am still hoping for volunteers for my local estimating academy mentoring team. Those of you who have helped set up local academies and know the ropes can be real assets to our new chapters. If you think you’d have interest please volunteer—no heavy lifting required; just some advice, feedback and consultation. Local estimating academies on whatever scale a chapter can muster are great. Any program—whether it have one instructor or two, is one-half or even a full day—will bring great benefits back to the chapters.

Next report comes in April. I look forward to the months ahead as we head toward our 51st anniversary events in Park City.

Edward Walsh
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HOW TO ESTIMATE THE COST OF WALL AND CORNER PROTECTION

By **RONALD L. COVARRUBIAS**

DATE WRITTEN: MAY OF 2005

The author is Ron Covarrubias, Project Manager with Northstar Management Company, a program management firm in St. Louis, Missouri. Northstar Management works with clients as owner representatives and construction managers. Ron's duties include project management, design development oversight, budget / cost opinion creation and review, and contract administration.

Ron served as estimator and senior estimator for Holland Construction Services, Swansea, Illinois for 12 years and as estimator with McGrath and Associates, St. Louis, Missouri for 4 ½ years. His estimating experience has been in building and industrial construction with his building experience emphasis on hospital and retail projects.

Ron graduated in 1988 from Southern Illinois University Edwardsville with a Bachelor of Science in Construction and a minor in Business Administration. He has been a member of the American Society of Professional Estimators for 19 years serving on the education board for 7 years and he has held chapter offices. Ron has taught numerous estimating classes and seminars for the American Society of Professional Estimators, the Associated General Contractors and Southern Illinois University Edwardsville.

Ron has been married to wife Karen for over twenty years. They have two boys Ryan and Kevin. The family enjoys traveling, camping and attending and participating in sporting and musical events. The Covarrubias family also raises awareness and funds for the Juvenile Diabetes Research Foundation.

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INTRODUCTION

This paper will give the reader an understanding of how to estimate wall and corner protection.

Main CSI Division – Division 10 Specialties

CSI Subdivision – Section 10260 Wall and Corner Guards

Description: Wall and corner protection is generally a linear, impact resistant material or system applied to a wall for the purpose of absorbing collisions to protect wall finishes and avoid non-structural damage. These products are used on interior wall surfaces and are either run horizontally, at a fixed height above finished floor, or vertically on "outside" wall corners. Wall and corner protection may be either simple one piece or more complex multi-piece elements, they may be functional only or incorporate decorative aspects and they may attach with simple adhesives to wall surfaces or with concealed mechanical fasteners and embedded into wall systems.

Wall and corner protection may be referred to as bumper guards, wall guards, corner guards, end wall guards, crash rails, hand rails and guard rails. While there are many different names and slightly different functions for each of these products the purpose is primarily the same... protect the wall surfaces and corners they are attached to from general use impacts.

Resilient wall panels, primarily used for wall surface durability and clean-up purposes, will not be evaluated in this discussion.

TYPES AND METHODS OF MEASUREMENTS

The estimator will use architectural drawing scales, digital rolling plan measurers and digitizers to get take-off quantities from the bidding documents. The types of measurements necessary for quantifying wall and corner protection are usually simple lineal footage determinations and piece counts. These basic quantities are used to then calculate the amount of adhesive, the number of attachment brackets and fasteners, and even how much wall blocking or perimeter sealants are needed.

While the calculations necessary to complete the take-off process are fairly simple, finding wall and corner guards on the documents is often more challenging. While there are recurring methods of representing these products on the drawings, there is not a sole accepted standard. Some of the more widely used methods include:

- A dotted line on the plan next to a wall with a typical note attached
- A heavy line on the plan next to a wall with a typical note attached
- A drawn representation on an interior wall elevation with a note
- A alphabetic or numeric label on the plan or wall elevation referenced to a description legend
- A reference of WP (Wall Protection) or WG (Wall Guard) or BR (Bumper Rail) or CG (Corner Guard) on the room finish schedule
- A wall protection schedule summarizing the type of product with a quantity or room location designated
- A written narrative in the project specifications

FACTORS THAT AFFECT TAKEOFF AND PRICING

Product details and multi-part systems

The actual design of the product specified has a large impact on the takeoff and pricing of wall and corner protection. The details and section cuts of a specified product must be reviewed and evaluated to determine if the basic product is a single unit or if it is made up of multiple pieces.

For example, a bumper guardrail might have an aluminum extrusion that is mounted to the wall and a resilient rubber insert that is snapped into the extrusion. Therefore two distinct pieces must be handled and installed.

In other examples the number of installed pieces might increase to three or four along the length of the rail plus terminus elements. Terminus elements might include wall brackets, splice plates, outside corners, inside corners, end caps and wall returns. These important details are occasionally found in the project documents but usually have to be researched in manufacturer's literature or on their website.

A combination wall guard / handrail unit must not only protect the wall, it has to support the weight of an individual using it to steady themselves. Because of this load requirement, the distance from the individuals grasping point on the handrail and the handrails attachment point on the wall must be considered in evaluating the moment arm and thus the pull out resistance of the fasteners in combination with the substrate.

Effect of substrate materials

The substrate to which the wall and corner protection will be fastened can have a huge impact on labor productivity and the types of fasteners to be used. Attaching to a masonry wall will take a great deal more time than attaching to wood framed construction. A metal stud partition that will have a

combination guardrail / handrail attached will certainly require blocking installed in the wall to support the handrail loads and distribute that load within the wall.

Effect of small quantities versus large quantities

Small quantities cause the cost per unit for wall and corner protection to be higher due to several factors. Material unit prices from suppliers are higher for small quantities and discounts are applied as quantities increase. Shipping costs are also higher for small quantities. Finally, small quantities are more expensive to install because lower productivity, during the learning curve, and generally fixed setup and take-down costs are not able to be offset as the crew becomes faster. In other words by the time the crew starts working efficiently, they are done.

Effect of "short run" segments

Work that involves a large number of short pieces of wall protection, including walls that have a large number of corners, has a negative effect on installation productivity and increases waste, and the number of fasteners and brackets needed mount the products. In addition, when specified, manufactured corner units, end caps, or wall returns must

be installed at each termination point in the wall protection or corner in the wall and those extra pieces create higher material and labor cost.

Effect of renovation work and existing facilities

Special consideration must be made when estimating the installation of wall and corner protection for a renovation project. A few questions must be answered to make certain the products are properly estimated:

- Will existing wall framing be capable of supporting the new work or will additional framing or blocking have to be added?
- Is the existing wall surface smooth and level or will patch work need to be performed or the wall surface replaced?
- Does the specified wall and corner protection have concealed or embedded attachment flanges? If so, the wall surface must be removed, the fastening surface examined, and possibly repaired, and then the wall surface patched and replaced after the wall protection is installed.

Effect of geographic location and interior environment

Due to the demand for and availability of wood materials in wall protection products the humidity and temperature of a region or of a particular interior building space can have adverse affects on the products and create installation problems. In order to overcome these problems the wood materials should be placed in the installation area 48 to 72 hours prior to installation and be allowed to acclimate to those conditions.

OVERVIEW OF LABOR, MATERIAL, EQUIPMENT AND INDIRECT COSTS

Scope of work

The following example estimate will outline the basic steps required to complete the takeoff and pricing of wall and corner protection. For the purposes of completing this estimate, the drawing of a new work area (Figure 1) and a legend (Figure 2) indicating the products that are represented on the drawing, are attached. This new work area, while in an existing medical facility, has been fully gutted and is being reconstructed with all new 4" metal stud drywall partitions. The general conditions of the contract indicate that all materials must be stored outside of the work area in trailers provided by the owner.

Product review and research

The first step, in understanding the takeoff work that is required, is reviewing the products that have been specified. In this case, InPro Corporation model #1200 wall handrail (Figure 3), model 150BN corner guard (Figure 4) and model 150DBN end wall protector have been specified. The products are reviewed and the true number of installation pieces are identified and listed on the top of the takeoff sheet (Figure 5). Note that the project drawings do not identify a wall guard WP-2, a corner guard CG-1 or end wall guard EG-1 for installation despite being specified.

Quantity takeoff

Proper takeoff and quantification of wall and corner protection is a relatively simple process. The full range of takeoff tools available to the estimator can be used to quantify these products; low tech architectural scales and tape measures are just as effective as high tech digital electronic wheels and digitizer boards. The key to effective takeoff is an organized takeoff sheet that allows all the pieces necessary, for a complete installation, to be quantified in one pass. The takeoff sheet should also allow the estimator to identify the information by work area such as floor number, room number, elevation, detail or even an estimator invented labeling system. The completed takeoff sheet for the example estimate is shown below (figure 5).

Estimate pricing

Finally, with all takeoff completed, the quantities are transferred to the estimate pricing sheets from the takeoff sheet in a logical work sequence (Figure 6). The work is now priced starting with labor and equipment. In this example the estimator will utilize the following production units to calculate labor hours:

2" x 6" Wood Blocking – 20 LF / Hour
Handrail Bracket Layout – 6 EA / Hour
Handrail Retainer – 6 LF / Hour
Handrail Splice Plate – 6 EA / Hour
90° Inside Corner – 4 EA / Hour
90° Outside Corner – 4 EA / Hour
End Returns – 4 EA / Hour
Handrail Vinyl Cover – 40 LF / Hour

Corner Guard Retainer – 2 EA / Hour
Corner Guard Cover – 8 EA / Hour
Corner Guard Caps – 18 EA / Hour
Unloading and Distribution – 8 Hours

The labor rates including all benefits, payroll taxes and workmen's compensation are:

Carpenter - \$50.00 per hour
Laborer - \$40.00 per hour

Small tools and equipment is calculated at \$2.00 per total labor hours. Pricing from the contractor's database includes 2"x6" wood blocking for \$.70 per lineal foot and hardware and fasteners are priced at \$.03 per dollar of quoted wall and corner protection. Assume the project is a "for profit" medical facility and materials are subject to a 7.245% sales tax.

The last step in completing the estimate is to insert the cost for quoted materials as a lump sum or as unit costs. In this example assume the materials have been quoted by InPro Corporation as follows:

#1200 Handrail (including aluminum retainer and resilient cover)	\$20.00/LF
#801 Mounting Bracket	\$12.50/EA
#1204 Outside Corner	\$25.00/EA
#1205 Inside Corner	\$35.00/EA
#1202 or 1203 Left or Right Wall Return	\$17.50/EA
#804 Handrail Splice	\$ 7.50/EA
#150BN High Impact Corner Guards (retainer, cover and caps)	\$87.25/EA
Shipping is free for orders of	\$5,000 or more.

The completed estimate (figure 6) totals \$17,400.00 for the wall and corner protection work. There are approximately 122 hours of total labor. Of those 122 hours, 41.6 hours are for installing the handrail and 48.58 hours are for installing the corner guards.

SPECIAL RISK CONSIDERATIONS

Because wall and corner protection is used inside buildings and the materials they are made of are generally unaffected by soil, climate and weather conditions, there are fewer special risks than with other work. The special risks that do exist cannot be fully controlled by the estimator but should be anticipated and accounted for in the estimate.

- Manufacturers stocked lengths of wall protection products
- Hidden interferences at wall rail attachment points
- Project schedule, multi-year projects and job phasing requirements
- Location of and access to the material stockpiles

RATIOS AND ANALYSIS

Upon completion of an estimate for wall and corner protection the estimator should total and examine the total number of lineal feet of handrail divided by the total hours of labor to install it. This calculation should be repeated for the

corner guards. These ratios should be compared to historical data maintained by the company or to a trusted estimating data resources such as R.S. Means, Frank Walker's or Richardson's, to name a few, or be analyzed by the experienced estimator or discussed with a carpentry foreman or superintendent.

For the handrail: 177 LF/41.6 HRS = 4.25 LF/HR

This estimator's historical data shows installation productivities that range from 2 LF/HR to 8 LF/HR. This production, in the lower end of the range, is somewhat expected due to the complexity and relative short length of handrail runs.

For the corner guards: 528 LF/48.58 HRS = 10.87 LF/HR

This estimator's historical data shows installation productivities in the range of 8 LF/HR to 15 LF/HR. This production, in the lower end of the range, seems a little lower than expected by 1 to 2 linear feet per hour but would likely not be adjusted. R.S. Means' historical data indicates that those productions are just the opposite of the author's findings but, again, would likely not adjust this estimate.

Utilizing historical data is the preferred method of preparing and analyzing labor costs estimates. Construction firms should utilize actual field experience results, recorded on a daily or weekly basis, and entered into an accounting system that is capable of tracking line item cost. The data returned should include cost per unit of work and units of work per hour or hours per unit of work. In the case of wall and corner guards dollars per lineal foot and lineal feet per hour should be recorded. In the absence of a company cost tracking system, the professional estimator should endeavor to track productivity on his own through personal observation or communication and cooperation with trade foremen.

SAMPLE DRAWING, LEGEND AND CUT SHEETS

Pages attached:

Figure 1 New Work Area Drawing
 Figure 2 Wall and Corner Protection Legend
 Figure 3 a, b & c InPro Corporation Wall Handrail Installation/Cut Sheets
 Figure 4 a & b InPro Corporation Corner Guard Installation/Cut Sheets

SAMPLE TAKEOFF AND ESTIMATE SHEETS

Pages attached:

Figure 5 Completed Takeoff Sheet
 Figure 6 Completed Wall and Corner Protection Estimate

REFERENCES

InPro Corporation, Product Guide, Muskego, Wisconsin
 R.S. Means Building Construction Cost Data, 61st Edition 2004
 Construction Specialties Inc. / Deco Guard Products, Installation Guides, Muncy, Pennsylvania

LEGEND – Wall and Corner Protection

Horizontal Wall Protection:

WP – 1 InPro Corporation #1200 Handrail
 WP – 2 InPro Corporation #500 Wall Guard

Corner Guards:

CG – 1 InPro Corporation 3" Textured Tape-on (8' Height)
 CG – 2 Not Used
 CG – 3 InPro Corporation #150BN w/ Top & Bottom Caps

End Wall Guards:

EG – 1 InPro Corporation #150DBN w/ Top & Bottom Caps

All products to be selected from manufacturer's standard colors

FIGURE 2
WALL & CORNER PROTECTION LEGEND

LEGEND – Wall and Corner Protection

Horizontal Wall Protection:

- WP – 1 InPro Corporation #1200 Handrail
- WP – 2 InPro Corporation #500 Wall Guard

Corner Guards:

- CG – 1 InPro Corporation 3" Textured Tape-on (8' Height)
- CG – 2 Not Used
- CG – 3 InPro Corporation #150BN w/ Top & Bottom Caps

End Wall Guards:

- EG – 1 InPro Corporation #150DBN w/ Top & Bottom Caps

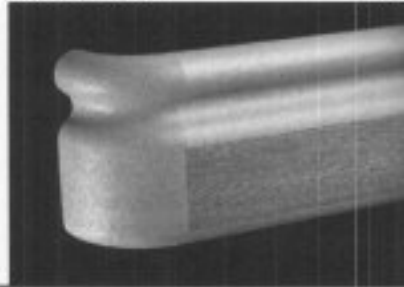
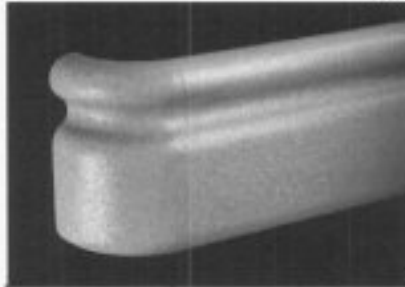
All products to be selected from manufacturer's standard colors

FIGURE 3(a)

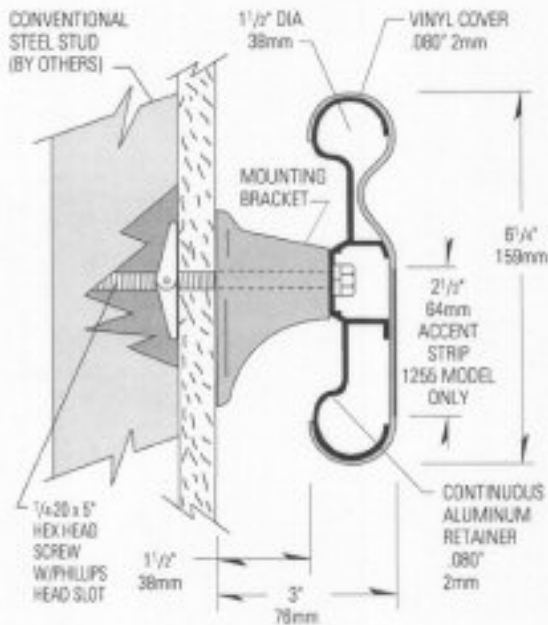
1200/1255 Handrails

1200 Patent #5,743,064

1255



Product Guide ®



- ① 6 1/4" (159mm) height x 1 1/2" (38mm) gripping diameter, extends 3" (76mm) from wall
- ② Mounted on a sturdy .080" (2mm) thick, continuous aluminum retainer
- ③ .080" (2mm) thick, scratch and stain resistant rigid vinyl cover
- ④ Easy installation, clean-up and maintenance
- ⑤ Approved in California by OSHPD for hospital use
- ⑥ Meets ADA and ANSI criteria
- ⑦ Manufactured in 12" (3.66m) standard lengths
- ⑧ All mounting fasteners are included with each order
- ⑨ 1255 Model - 2 1/2" (64mm) high accent strip available in 54 standard colors, several pattern and finish options, as well as custom colors.

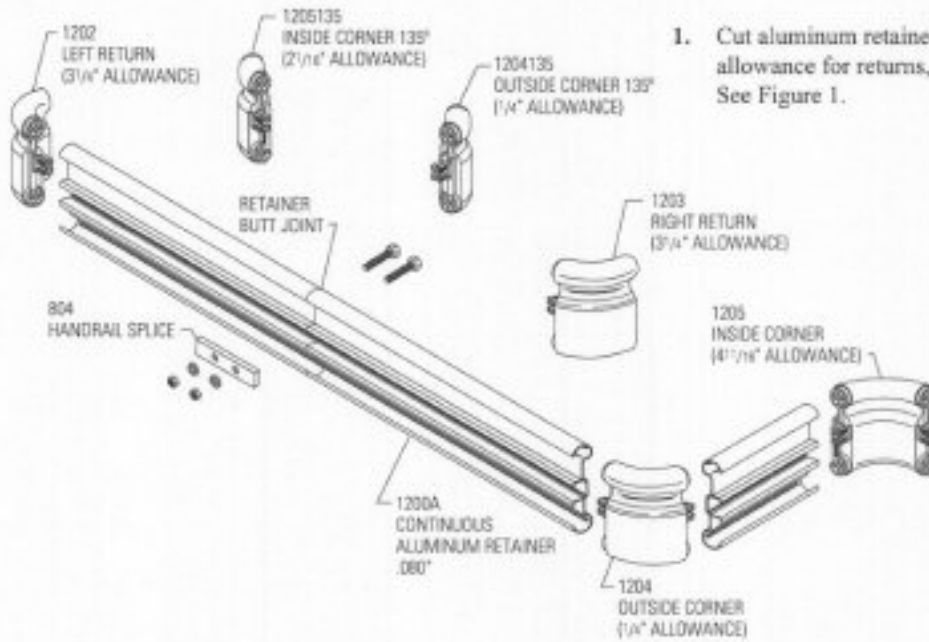
IPC.330/REV.2

FIGURE 3 (b)

Installation Instructions

1200/1255 Handrail

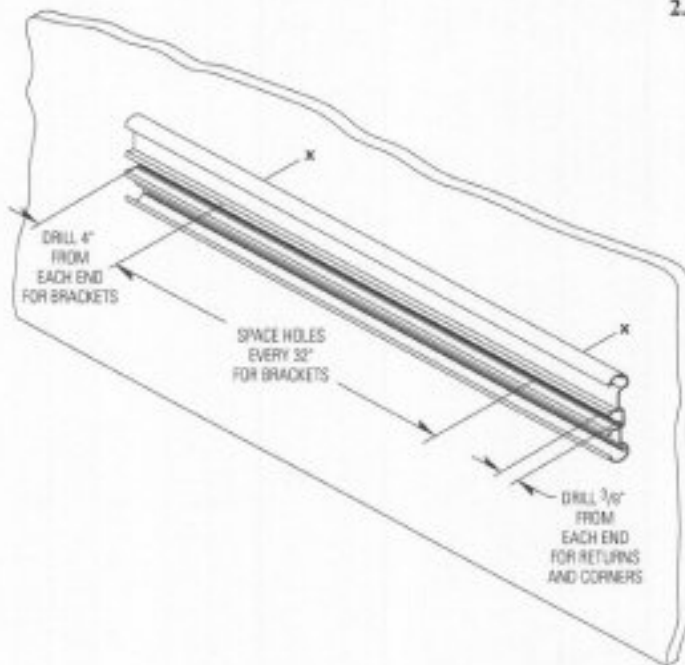
FIG. 1



Please read all instructions before installing handrail.

1. Cut aluminum retainer to desired length, leaving allowance for returns, outside corners and inside corners. See Figure 1.

FIG. 2



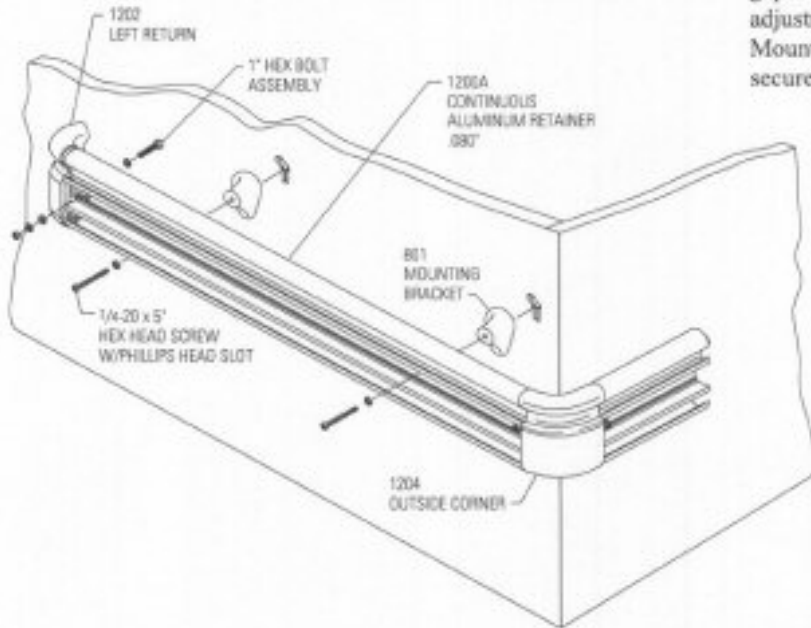
2. Drill holes in centerline of aluminum retainer for brackets, returns and corners using 1/4" drill bit. Position aluminum retainer against wall at desired height allowing for returns and corners. Level and mark bracket holes on wall. Drill marked holes with 3/4" drill bit for toggle bolts (drywall installation) or 1/2" drill bit for lead anchor (concrete wall installation). See Figure 2.

FIGURE 3 (C)

Installation Instructions

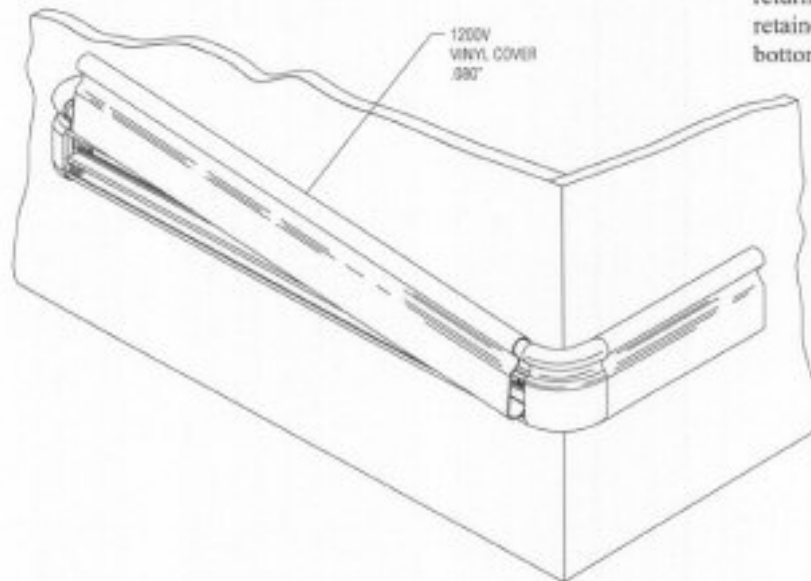
1200/1255 Handrail

FIG. 3



3. Attach returns and corners to retainer leaving a 1/16\" gap between returns/corners and retainer to allow for adjustment. Loosely attach brackets to retainer. Mount on wall, level retainer and tighten screws to secure. See Figure 3.

FIG. 4



4. Cut vinyl cover to length between returns and/or corners. (Note: Trim factory edges square before installation). Position cover on retainer and adjust returns and/or corners for a tight fit. Snap cover on retainer by starting at top and pivoting over the bottom of retainer. See Figure 4.

NOTE: For 1255 Vinyl Only - When continuous runs are over 12', vinyl covers should be installed in consecutive order using the numbers found on the back of vinyl covers. This ensures proper alignment of accent strip.

FIGURE 4 (a)

Installation Instructions

BluNose High Impact Corner Guards

Models: 150BN, 160BN, 170BN, 130BN

FIG. 1

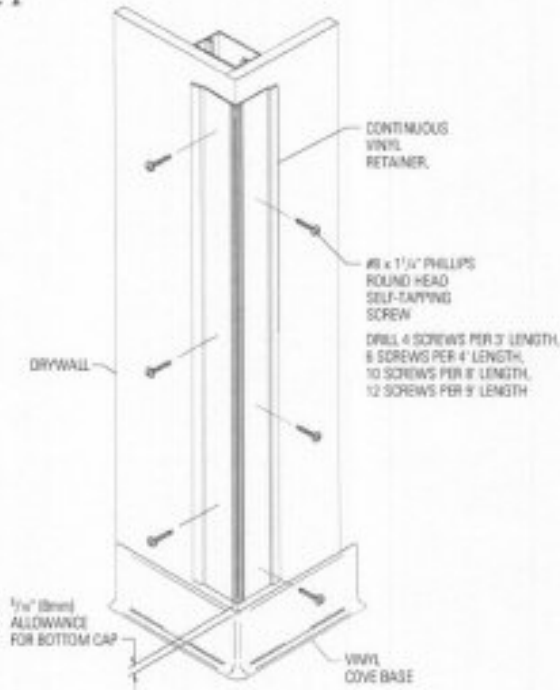


FIG. 2



Please read all instructions before installing corner guards.

Material must be stored, installed and used in environmentally controlled conditions.

1. Position vinyl retainer against wall, leaving allowance for bottom cap. Secure retainer to the wall by staggering fasteners on each wing of the retainer. See Figure 1.

Note for concrete installation: Use the slotted tabs on the top and bottom caps to transfer and drill 1/4" (6.5mm) holes into the ends of the retainer. Also drill 1/4" (6.5mm) holes staggered on each wing of the retainer. Drill 4 holes per 3' (.91m) length, 6 holes per 4' (1.22m) length, 10 holes per 8' (2.44m) length or 12 holes per 9' (2.74m) length. Transfer the location of the mounting holes to the wall. Drill marked holes on wall using a 1/4" drill bit and position Alligator anchors into holes. Mount retainer on wall with #10 x 1-3/4" phillips pan head screws and tighten to secure.

Note for 170BN Blunose 90° Bullnose Corner Guard: Corner bead of wall must be 3/4" (19mm) radius to accommodate retainer.

2. Overlap the retainer with the mounting tabs of the top and bottom caps and attach them to retainer. Stagger the fasteners on each wing of the cap. See Figure 2.

Note for concrete installation: Overlap the retainer with the mounting tabs of the top and bottom caps and attach them to retainer and into the Alligator anchors using two, #8 x 1-1/2" phillips flat head screws per cap.

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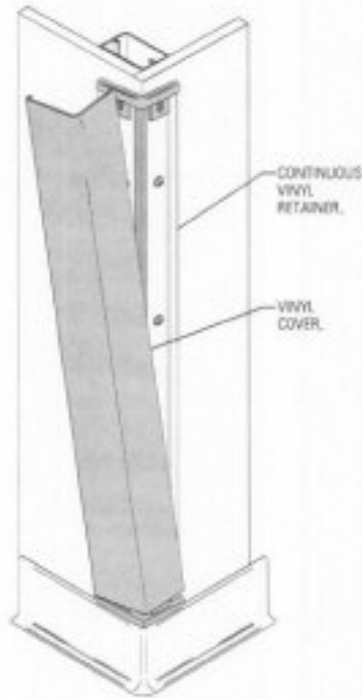
FIGURE 4 (b)

Installation Instructions

BluNose High Impact Corner Guards

Models: 150BN, 160BN, 170BN, 130BN

FIG. 3



3. Position cover on retainer and adjust the top cap for a tight fit. Starting at the top, push cover onto retainer pressing over the entire length until it snaps into place. See Figure 3.

A Journey to Success Series — Article Two

Nov 14, 2006

I signed the CPE Standards Manual up for a frequent flyer program with Continental—that is the only time I have to read it nowadays anyway.

Nov 20, 2006

I got my long awaited certification packet today and I have to say I was a bit disappointed. I kept thinking it would be spiral bound or maybe come in a 3-ring binder or something official looking. But nooooooo.... All I got was a CD and had to print it myself (almost 150 pages....geez)

Nov 23, 2006

Happy Thanksgiving!!

Nov 26, 2006

I sacrificed a great fishing day and read through my certification packet instead. It is full of great information but not all of it necessary for the new “CPE Wannabes.” Read through the table of contents carefully before you print everything.

Nov 30, 2006

I'm was on a plane to NYC and reading page 68 scared me — my stated weaknesses of Mechanical and Electrical estimating are called out specifically for the General Building Construction Discipline Specific test as having “some emphasis.” How much emphasis? Somebody call me, email me, warn me or better yet... teach me!And—does it really take 8 hours to complete?

Dec 4, 2005

Feedback—I've been told to take it easy. The GEK portion is a lot like the EP2 test I took and passed a few months ago. Ok—that's only 4 hours. I can handle that. The Disciple Specific Test (DST) is a mind-numbing 8 hours. Lucky me; as a general construction estimator I have to know everything. Some people think I am a know-it-all—now I get to prove it.



Adrian Ramos
CPE “Wannabe”

Dec 5, 2006

I am filling out the Application for Professional Evaluation. That is the entry form that will be reviewed by Certification Board to determine if I am eligible to begin participation in the certification program. I hope by now, there should be no questions as to my qualifications. Even so, I am going to have every CPE I know review my application before I send it up (with \$275). If accepted into the program I will be issued a candidate number and a technical paper topic and hence be known as “CPE Candidate” (upgraded from “CPE Wannabe”)

Dec 12, 2006

I contacted my old boss from the last place I was at; I told him they would be calling to verify if I was a great estimator and then asked him how much money he would need to say that (just kidding). To maintain the integrity of the program it is a requirement that your chapter certification chairman verify your employment and past jobs (its not that you're not trusted - so you sensitive types don't need to feel slighted)

Dec 14, 2006

I finally finished the application for professional evaluation. Trying to explain a difficult estimating task in 25 words or less is harder than doing an estimate!

Dec 15, 2006

Certification Workshop – all you ever wanted to know about the CPE certification process, except the answers. You will get advice; what to bring; how to prepare; what not to bring (no cell phones); what to study. Bring your checkbook or credit card information; if you have all your information filled out you can give it to your certification chairman at the workshop. He has until Jan 5 to get it to the ASPE business office.

Dec 22, 2006

By the way! The Certification chairman does call your old bosses. Thank goodness I left on good terms.

Jan 1, 2007

Happy New Year! Feliz Ano Nuevo! The ASPE standards manuals and GEK Study guide are now international traveling partners. We all spent the New Year's holiday in Mexico at the beach. And believe it or not, I did get some studying done!

Jan 8, 2007

I received word today that my Application for Professional Evaluation had been received at the ASPE business office and that the Certification Board would be convening at the end of the month to review my application and pick the hardest one of my three choices for “How to Estimate the Cost of....” ●

Selecting Truck-Mounted, Hydraulic Cranes

By Steven J. Peterson, PE, MBA

Author Page

Steven Peterson is an associate professor in the Parson Construction Management Technology program at Weber State University. He teaches courses in estimating, scheduling, and construction finance. Prior to teaching at Weber State, Steve worked as a project manager and estimator in the construction industry. He received a MBA and a BS in engineering from the University of Utah. Steven is the author of *Construction Estimating using Excel* and *Construction Accounting and Financial Management*.

Introduction

Truck-mounted, hydraulic cranes are commonly used in the construction industry to set construction components (such as structural steel) and equipment (such as HVAC units). These cranes consist of a boom and operator's cab mounted on a truck. The boom can be hydraulically extended to meet the job requirements. The advantage of this type of crane is that it can be quickly mobilized and demobilized with little set up time.

Selecting the proper size of crane can be tricky. Over-sizing a crane wastes money; whereas under-sizing a crane may delay the project while a suitable crane is procured; and should an undersized crane be used, people, the structure, and the crane are at risk. The purpose of this article is to give the reader an understanding of some of the factors that need to be taken into account when selecting a crane. Questions regarding the suitability of a specific crane for a lift should be directed to the crane's supplier or manufacturer.

Factors in Crane Selection

There are a number of factors to take into account when selecting a crane including lift weight, lift height, crane ratings, obstacles, environmental conditions, and costs.

Lift Weight: The weight of the lift includes the weight of the construction components or equipment to be lifted (the load) and the rigging. The rigging includes all items necessary to secure the load to the crane and may include cables, spreader bars, or buckets.

The weight of structural steel is estimated by multiplying its length by the weight per foot or in the case of plate, by multiplying its area by its weight per square foot. For wide-flange beams (W), American standard beams (S), structural tees (WT), and channels (C) the weight per foot is included as the last number in its designation. For example a W12×40 beam would weigh 40 pounds per foot and a C12×30 would weigh 30 pounds per foot. For angles (L), structural tubing (ST), pipe, plate, and other shapes, the weight needs to be looked up in a reference manual, such as *Designing With Structural Steel - A Guide For Architects 2nd Edition*, published by American Institute of Steel Construction (AISC). This publication may be downloaded free of charge from the AISC website at http://www.aisc.org/Content/NavigationMenu/ePubs/freePubs1/Materials_for_Architects/Materials_for_Architects.htm. When calculating the weight for structural steel, the estimator needs to include the weight of the connections attached to the beam.

The weight of joists and joist girders must be looked up in a table or provided by the manufacturer. The approximate weights for standard joists and joist girders can be found in *42nd Edition Catalog of Standard Specifications and Load Tables for Steel Joists and Joist Girders*, published by the Steel Joist Institute. This publication may be downloaded free of charge from the Steel Joist Institute website at <http://www.steeljoist.org/sjiform/>. The weight of custom joists and joist girders must be obtained from the manufacturer.

The weight of equipment, lifting buckets, concrete, and other items must be obtained from their manufacturer.

Lift Height: The lift height includes three components: the height of the rigging, the height of the load being lifted, and the difference in the elevation of the crane and the elevation where the load is being placed. The height of the rigging should include the distance between the pulley at the top of the boom and the bottom of the hook when the hook is raised to its maximum height, in addition to the height of spreader bars and other rigging. The lift height is shown in Figure 1.

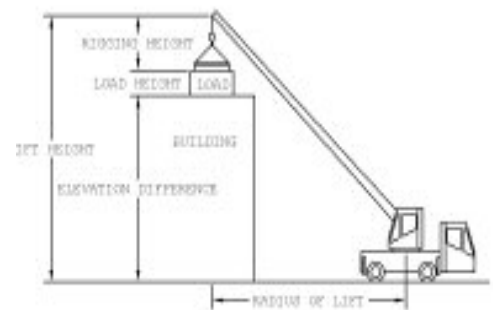


Figure 1

Radius of the Lift: The radius of the lift is the distance from the center of the crane to the center of the load. The center of the crane is the center of the rotating platform on which the operator's cab and boom rotate, rather than the center of the entire crane. The lift radius is shown in Figure 1. The maximum radius of a lift for a crane is dependent on the height of the lift. As the height of the lift increases, the angle of the boom has to be increased to achieve the desired height, which results in a shorter available lifting radius. This relationship is shown in Figure 2.

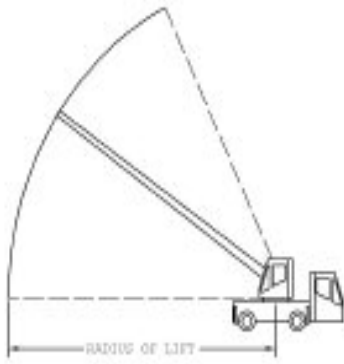


Figure 2

Crane Ratings: The load a crane can lift is a function of the radius of the lift. For lifts with a long radius, the maximum weight a crane can lift is limited by the crane's ability to resist tipping. For lifts with a short radius, the maximum weight a crane can lift is limited by the structural capacity of the crane. When lifting too much weight a long distance from the crane, the crane will fail by tipping over; whereas when lifting too much weight close to the crane, the crane will fail by breaking rather than by tipping over. The capacity of a crane is published by the manufacturer. They are often published in tabular form, such as shown in Figure 3, which is extracted from the specifications for a Grove AT400 crane. A crane may have different load ratings with its outriggers up or down; or different load ratings over the front, side, or back of the truck.

Radius (feet)	Boom Length (Feet)				
	27	40	53	62	70
8	44,000	43,000	42,450		
9	41,000	41,000	39,050		
10	40,000	38,000	37,550		
12	31,850	31,450	31,450	33,450	
15	24,300	24,300	24,300	24,300	22,000
18	19,000	17,600	17,600	17,600	17,600
20		13,300	13,300	13,300	13,300
25		10,400	10,400	10,400	10,400
30			8,500	8,500	8,500
35			7,000	7,000	7,000
40				5,840	5,840
45				4,800	4,800
50					3,900
55					3,200

Figure 3

Obstacles: Obstacles, such as building components, between the location of the crane and where the load is being placed often increase the size of the crane needed. When lifting over an obstacle, such as a parapet wall, the height of the lift is increased and may require a larger

crane to clear the obstacle. When placing a lift a long distance behind a parapet wall, the crane may need to be placed further from the edge of the building to increase its lifting radius by decreasing the angle of the boom. This may require a crane with a longer boom. Buildings are often constructed beginning at the point furthest from the crane to minimize the number of obstacles as well as the crane size.

Environmental Conditions:

Environmental factors, such as wind and slope of the site, can affect the lifting capacity of a crane. When lifting objects with a large surface area, wind increases the forces on the crane and can cause the crane to fail under lifting conditions that, in the absence of wind, would be safe. Unless the crane is leveled, placing the crane on a sloped site will change the tipping characteristics of a crane and can lead to tipping under load conditions which, on a flat site, would be safe.

Costs: Cranes are often rented by the hour. The cost for a crane includes mobilization and demobilization, setup time, working time, and delays.

Mobilization and demobilization includes the cost to drive the crane to and from the site and is often billed based on the travel time and mileage. It may be more economical to rent a larger crane that is located near the construction project rather than a smaller crane located further away because of mobilization and demobilization cost.

The setup time is the time it takes to get the crane ready for a lift and to move it between lifts. This includes spotting the crane, extending outriggers, and leveling the crane before lifting. It also includes retracting the outriggers before moving the crane after the lift. Setup time is incurred each time the crane is moved at the construction site; therefore, it may be more economical to use a larger crane which will require fewer moves to perform all of the lifts rather than a smaller crane which will require numerous moves.

The working time is the time it takes to perform all of the lifts. Each lift may be

viewed as a cycle consisting of five steps: (1) attaching the load to the crane, (2) lifting the load into position, (3) securing the load so that the crane is no longer needed to support the load's weight, (4) unhooking the load from the crane, and (5) returning the crane to the point where the next load is to be hooked up. A larger crane may be more economical than a smaller crane, because it could reduce lifting and return time by lifting multiple items at one time

Delays consist of the unproductive time experienced by a crane. When lifting involves a significant amount of delay time, smaller cranes are often more economical than larger cranes because they cost less per hour.

Conclusion

When selecting a crane, the estimator needs to take into account a number of factors, including lift weight, lift height, crane ratings, obstacles, environmental conditions, and costs.

Glossary

- Boom:** The long straight part of a crane which is used to lift loads.
- Rigging:** Lines or cables use to connect loads to a crane.
- Spreader Bar:** A bar used to keep cables apart during a lifting operation.

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