



SEAU NEWS

The Newsletter of the Structural Engineers Association of Utah

Volume VIII- Issue IV January 2004

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This newsletter is a monthly publication of the Structural Engineers Association of Utah.

Articles or advertisements appearing herein may be submitted by anyone interested in expressing a viewpoint on structural engineering.

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Use of structural lightweight concrete on the *LDS Conference Center* building, Salt Lake City, Utah, by Utelite Corp.

IN THIS ISSUE

- Message From The Board p 1
- Member Forum..... p 3
- Proposed By-Laws Changes p 4
- Bulletin Board p 8

JANUARY EVENT

Design of Reliant Stadium Retractable Roof Stadium

Presented by:
Larry Griffis P.E.
Structures Division President
Walter P. Moore & Assoc.

▼
Date:

Thursday, January 15, 2004
5:30 p.m. – Social Hour
6:00 p.m. - Program

▼
Location:

EMCB Room 103
University of Utah

MESSAGE FROM THE BOARD

PEER REVIEWS



By Carl Eriksson,
SEAU UEC Delegate

A new year brings with it new opportunities, and hopefully those that come your way will be profitable and joyous. Over the years I have had hundreds – no, thousands – of opportunities to review the work of other design professionals. I have seen the gamut, from those whose attitudes evidently are shouting, “Cut corners, do as little as possible, get this dumb job behind me,” to

those whose attitudes are evident in the quality of their work, the thoughtful consideration of costs and construction challenges, and the obvious interest in providing their client with a cost-effective solution to a complex and challenging project. Most of those whose work I have reviewed accept my comments – some even appreciatively – and understand the issues that I raise.

When our work is reviewed by someone other than a peer, however, we sometimes take umbrage at their comments because they are untrained. Most of the non-engineer plan examiners and building officials have received at least some nominal training in some highlights to look for in structural plan review. Among those are to check that the wind, snow, and seismic assumptions are correct, and that the correct importance factors are used. Some have a good understanding of the issues associated with special inspections

and structural observation. There are those who have learned to recognize the importance of identifying a load path, and understand some of the issues related to diaphragms, shear walls, and connections. The competent ones will also try to spot check the proper transfer of information from the calculations to the plans. In issues such as these we should appreciate their comments, and make corrections as appropriate.

“But why,” you ask, “don’t we require or demand that our work be reviewed by a peer, another engineer in whom we can feel some degree of confidence?” That is a fair question, and we see more and more of such peer review going on. We did succeed through the Seismic Safety Commission, in requiring peer review of our schools. Many jurisdictions, especially the larger

ones, are getting peer review on many of the larger or more complex structures built in their cities. In an ideal world, the review would be commensurate with the qualifications of the designer: an architect’s work would be reviewed by an architect, an engineer’s by an engineer, and a non-licensed designer’s by a plans examiner.

Some years ago I was successful in finding sponsors for legislation that would have at least required that a person doing a plan check of a large or complex building be licensed (certified) as a plans examiner. We succeeded in getting the bill through the Senate, but the house rejected it. It was opposed by small jurisdictions who were afraid that they couldn’t afford to hire a plans examiner, or even to farm such work out. The same argument is

used to oppose peer review by engineers. While the plan review fees are adequate to cover the cost of farming out such peer review, those fees are almost universally deposited into the general funds of the community, and building departments must compete for their own revenues, against the Parks Department, the Streets Department, and so forth.

The only way we will be able to get the jurisdictions to do regular, consistent, qualified peer review is if we can first, by law, require that permit and plan check fees be deposited into a dedicated account, to be used only for code enforcement related costs. It has been done in other states, and it may be worth the effort to try and move in that direction.

MESSAGE FROM THE PRESIDENT

A certain tight-rope walker moved to a community and began demonstrating his ability. He first set up his wire across a shallow gorge and made a successful walk. He then performed a more dangerous walk successfully across a deep gorge. The community was so proud to have him with them. Word soon spread concerning his accomplishments. People were proud to have such an individual associated within their small town. Each time he walked they watched with confidence and awe.

On one occasion he positioned a wheelbarrow carefully upon the wire in front of him. He then asked the question, “Is there anyone here who believes I can push this wheelbarrow across this deep and dangerous gorge?” Several raised their hand. “Well, then get in” was his reply.

I would like to substitute “our profession” in place of the tight-rope walker, and ask ourselves the question; would we get in? It is safe to say we each have a significant investment in both time and money in our training. We should still have the notion this is what we want to do. We even defend these choices when questioned. I also believe we are sometimes in awe at what our profession has accomplished throughout the years. Do we however have enough confidence in our profession to get in? Or, do we become satisfied to simply watch others get in and leave us behind?

I believe we all respect those who are willing to take chances for our profession. Those that get in usually have the best view! All too often we find it easier to make comments from the sidelines. We even begin to justify why we don’t get in. As soon as we justify, we shift the true reason onto something else and our progress stops. This results in the possibility of being left further and further behind.

We need to have more confidence in what we do and in what we believe. Too often we feel sorry for ourselves and claim that “the view” is not that good. We should challenge ourselves to “get in” and gain confidence along the path. The more committed we are to something the less likely we are to give up. All of you have great talents and insights to offer. Each of you has a vested interest in the overall success of our profession and what we represent. I believe that as we start to believe that what we do is truly meaningful and something that only we can do, then others will begin to believe as well.

Ron Dunn
President, SEAU

MEMBER FORUM

FOCUS

Utah Structural Engineers provide a significant contribution to a wide variety of projects for commercial, government, industrial, and residential clients. Each month, SEAU would like to focus attention on the accomplishments, successes, and hard work of our Utah Structural Engineering firms. This month the focus is on:

R₂H Engineering, Inc.

R₂H Engineering, Inc., a structural engineering and construction management firm, was incorporated in 1993 in Las Vegas, Nevada by Robert C. Hendershot and Robert H. Hendershot. Ten years later, R₂H has offices in Las Vegas, San Diego and Salt Lake City, and has several engineers and drafters/designers. Both Robert C. and Robert H. Hendershot and many other firm members have been a part of Structural Engineers Association in California, Nevada and Utah.

The firm's expertise is in architectural, transportation, water/wastewater and forensic engineering. Projects that R₂H has been involved with range in size from a 5,900 sq. ft. masonry addition to the Supply Building at Camp Williams Army Reserve Base in Utah to a \$60 million renovation of the US-395/I-80 Interchange in Nevada.

The following are examples of R₂H projects.



R₂H provided structural design and drafting services for the South Hall expansion to the Las Vegas Convention Center, which added 1.3 million square feet of exhibition and convention space to the facility for a total of approximately 3.2 million square feet making it the second largest convention center in the nation. This addition is a 2-story facility spanning over a major road in Las Vegas. The second floor elevation is 35 feet above the main parking lot. Access to this floor by heavy trucks and equipment is provided by a pair of ramps and an 80-foot by 600-foot elevated staging

platform on the south face of the building. These ramps consist of mechanically stabilized earth (MSE) retaining walls and fill. The platform is composed of structural steel plate girders and a concrete deck.



The Reno Bowl project was a \$60 million upgrade and improvement to the US-395/I-80 freeway. The project included widening and replacing over 6 miles of freeway structures, hydraulics, drainage, slopes and ramps and rehabilitation of over twenty structures, including seismic upgrades, bridge widenings several concrete and MSE retaining walls, over 6 miles of sound walls, storm drains and other miscellaneous structures.



The Stoltz Building in Boise, Idaho, was originally designed in 1867 as a Masonic Building. The original 7420 square-foot building was constructed of sandstone and rock outer walls with a timber interior. R₂H performed a seismic evaluation; the initial inspections consisting of a complete visual of the building including the attic area to determine connections between roof diaphragm and the walls, connections at both floors to walls and parapets, and connections of appurtenant structures. At this time some demolition of the structure had taken place and many of the connections and foundations were exposed. The building was renovated for a 1st-floor restaurant and a 2nd-floor office.

PROPOSED BY-LAWS CHANGES

By Brent Maxfield, Board Member

The By-Laws Committee has presented several changes. Please review the entire By-Laws included in the Newsletter. These changes are described below. The Board of Directors encourages you to review these changes. Please submit any comments to Brent Maxfield via email or phone prior to January 12, 2004. The Board of Directors will vote on any minor changes, and voting grade members should receive a ballot in the mail by the end of January.

Brent Maxfield

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maxfieldba@ldschurch.org

Summary of Proposed By-Laws Changes:

Article II, Section 1: These changes are made at the suggestion of the membership committee. The intent is to speed-up the time it takes to process a membership application.

There are two changes: 1) Shorten the time for which objections may be received from members. 2) Allow the notices to be sent via e-mail.

There have been periods of time when the Newsletter was not published. It took several months to process a membership. This should help expedite the process.

Article III, Section 2: These changes are made at the request of the Board of Directors. There are constantly members who fail to pay their dues in a timely manner. These changes clarify the date by which dues must be paid. The change also imposes a late fee of \$20.00 for dues paid after September 30.

Article V, Section 2, Paragraph a: This is not a change, but is intended to clarify that only four members are elected to the Nominating Committee. The other is the President Elect/Vice President.

Article V, Section 2, Paragraphs c, d & e: These changes are made at the request of the Board of Directors. There are times when a March meeting is not held (It may be a sponsored seminar). This is technically against the By-Laws. This change allows the Nominating Committee elections to be held electronically, rather than at the March meeting. It also gives the nominating committee more time to report their nominations.

There are several changes: 1) Election of the Nominating Committee may be made by electronic or paper ballot. 2) Election does not need to occur at the March meeting. 3) It still allows the election to occur at the March meeting. 4) Members may now only make nominations prior to March 1. 5) The date for nominations has been extended.

BY-LAWS

of the

STRUCTURAL ENGINEERS ASSOCIATION OF UTAH**ARTICLE I****MEMBERSHIP**

Members in the Structural Engineers Association of Utah (The Association) shall consist of the following grades: PROFESSIONAL, ASSOCIATE, AFFILIATE, STUDENT, LIFE PROFESSIONAL, LIFE AFFILIATE, FELLOW, AND HONORARY.

Section 1. PROFESSIONAL GRADE. A PROFESSIONAL grade member in the Association shall be a Professional Engineer registered in the State of Utah, and regularly engaged in the practice of structural or related engineering.

A PROFESSIONAL may hold office and have one vote.

Section 2. ASSOCIATE GRADE. An ASSOCIATE grade member shall be an individual who at the time of acceptance of their application to the Association shall have been regularly engaged for at least four (4) years in structural or related engineering. Graduation in engineering from an accredited college or university with a degree in civil, structural, or related engineering may be considered by the Board of Directors as the equivalent of the four (4) years experience described in this section. An ASSOCIATE grade member may be an individual who is a Professional Engineer, but not registered in Utah.

An ASSOCIATE may hold no office and shall have no vote.

Section 3. AFFILIATE GRADE. An AFFILIATE grade member shall, in the opinion of the Board of Directors, be qualified for membership by reason of position, to cooperate with the Association in the advancement of the professional knowledge, practice, and welfare. An AFFILIATES' connection with the Association shall cease when the individual no longer holds a position qualifying for membership. The number of AFFILIATES shall be limited to not more than 25% of the total membership, excluding STUDENTS.

An AFFILIATE may hold no office and shall have no vote.

Section 4. STUDENT GRADE. A STUDENT grade member shall be an individual who at the time of acceptance of their application to the Association is a full-time or part-time undergraduate or full-time graduate student enrolled in an accredited civil, structural or related engineering program at a college or university.

A STUDENT may hold no office and shall have no vote.

Section 5. LIFE PROFESSIONAL GRADE and LIFE AFFILIATE GRADE. A LIFE grade membership may be awarded, at the discretion of the Board of Directors, to any PROFESSIONAL OR AFFILIATE grade member who meets all the qualifications of one of the categories given below:

1. a. Shall have been a member in good standing of the Association for a minimum of 20 years, and,
 - b. Shall, in the opinion of the Board, be retired from actively practicing engineering;
2. a. Shall have been a member in good standing of the Association for a minimum of 25 years, and,
 - b. Shall be at least 65 years of age;

- 3. A member who in the opinion of the Board is entitled to LIFE membership because of special circumstances. A PROFESSIONAL or AFFILIATE grade member who qualifies for LIFE grade membership shall have the term "LIFE" prefixed to the grade held at the time of acceptance for LIFE membership. A LIFE member shall have the same privileges associated with the grade held at the time of becoming a LIFE member.

Section 6. FELLOW GRADE: A FELLOW grade member shall have been a PROFESSIONAL grade member in good standing in the Association for five (5) years, shall be 55 years of age, and shall be retired or semi-retired from active practice of structural or related engineering. The five (5) year membership requirement may be waived by unanimous vote of the Board of Directors.

A FELLOW may hold office and have one vote.

Section 7. An HONORARY GRADE. An HONORARY membership may be awarded by the Board of Directors to any person who has achieved eminence in some branch of engineering, or the science related thereto.

An HONORARY grade member may hold no office and shall have no vote.

Section 8. Voting grade members shall consist of the following grades: PROFESSIONAL, LIFE PROFESSIONAL, and FELLOW.

ARTICLE II

ADMISSIONS, LEAVES OF ABSENCE, RESIGNATIONS,

EXPULSIONS AND CHANGES IN GRADE:

Section 1. Admission to or change in grade within the Association shall be in accordance with the following procedure:

- a. An application shall be submitted to the Board of Directors with the endorsement of at least one (1) PROFESSIONAL grade member. Endorsements shall not be required for transfer from one grade to another grade.
- b. Notice of the application shall be sent to the membership. Any member shall have ~~30~~ 14 days from the date of mailing of the notice, in which to file a written or electronic objection to the acceptance of the applicant.
- c. The Board of Directors shall vote upon the application giving due consideration to any objections that might be received. The applicant shall be duly accepted as a member upon receiving a majority vote of the full Board of Directors membership.

Section 2. A STUDENT's connection with the Association shall cease at the end of the fiscal year in which the STUDENT no longer meets the criteria of a STUDENT grade, unless there is a transfer to another grade of membership.

Application for change in grade shall be made when an ASSOCIATE is eligible to become a PROFESSIONAL grade.

A member who is eligible for change in grade, but does not make application within the fiscal year they become eligible, will be considered "not in good standing" with the Association.

Section 3. Upon written request by a member in good standing, the Board of Directors may grant that member a leave of absence for the forthcoming fiscal year. Leaves of absence will be requested and granted in full fiscal year increments only. Written request must be received by the

Board of Directors prior to May 31st of the fiscal year prior to the fiscal year the leave of absence is being requested for. During the leave of absence, the individual would not be required to pay dues and would have no privileges, duties, and benefits associated with membership in the Association. The individual would automatically be reinstated as a member in good standing at their most recently held grade at the beginning of the following fiscal year, unless a written request by the individual to extend the leave of absence through the next fiscal year is received by May 31st of the current fiscal year. Leaves of absence will be limited to two consecutive fiscal years.

Section 4. A member in good standing may apply for resignation by written communication to the Board of Directors. Upon acceptance by the Board of Directors, the member's resignation will become effective the first day of the following fiscal year. This individual's membership may be reinstated without payment of the initiation fee, pending acceptance of their application for membership by the Board of Directors.

Section 5. Members or member of any grade may prefer charges for disciplinary action against any other member or members of any grade, upon the grounds of unprofessional conduct or conduct detrimental to the Association, or in violation of its Code of Ethics or these Bylaws. Such charges shall be submitted in writing addressed to the President. The document shall specifically state the conduct in question, and be signed by the member or members preferring the charges. Such charges shall be treated as confidential by all concerned and shall not be discussed or disseminated, except as provided by this section. The Board of Directors shall consider the charges within 30 days. If disciplinary action appears to be warranted, the Secretary/Historian of the Association shall advise the member or members in writing of the charges, the name(s) of the member(s) preferring the charges, the time and place of the hearing of such charges (which hearing shall be conducted by the Board of Directors), and of the member's right to present at such time a defense, either in person or in writing.

After considering the evidence presented at such hearing, the Board of Directors may, by at least two-thirds vote of the full Board of Directors, order such disciplinary action as it deems appropriate, including, but not restricted to, censure, suspension of membership, or expulsion. The suspension period shall not exceed one year and during the period of any suspension, the member(s)' obligation to pay dues shall continue. The Board of Directors may, at its discretion, notify the membership of the disciplinary action taken.

Each member of the Association waives any claim for libel or slander which the member may have against any member or the Board of Directors, or of any officer, agent, or employee of this Association by reason of any charges made or published, or any other action taken pursuant to this section.

ARTICLE III

DUES, ASSESSMENTS AND CONTRIBUTIONS

Section 1. Initiation Fees shall be as follows:

None	HONORARY
\$ 5.00	STUDENT
\$15.00	ASSOCIATE
\$30.00	PROFESSIONAL, AFFILIATE

Transfer Fees shall be as follows:

None	PROFESSIONAL to LIFE
	PROFESSIONAL
	PROFESSIONAL to FELLOW

	AFFILIATE to LIFE AFFILIATE
\$10.00	STUDENT to ASSOCIATE
\$15.00	ASSOCIATE to PROFESSIONAL
	ASSOCIATE to AFFILIATE
\$25.00	STUDENT to PROFESSIONAL
	STUDENT to AFFILIATE
Section 2.	Annual dues shall be as follows:
None	HONORARY
	LIFE PROFESSIONAL
	LIFE AFFILIATE
\$ 10.00	STUDENT
\$ 55.00	ASSOCIATE, FELLOW
\$100.00	PROFESSIONAL, AFFILIATE

Members changing grade within the Association shall not be required to pay any additional dues during the fiscal year of the change.

Individuals joining the Association shall pay dues based on the following: If the Board of Directors approves the application between February 1st and September 30th, then 100% of the dues will be required, and will be applied to the full fiscal year beginning June 1st of that year. If the application is approved after October 1st and prior to February 1st, then 50% of the dues will be required for the balance of the current fiscal year.

Annual dues shall be payable upon billing and any member ~~more than 6 months in arrears who has not paid dues by December 31~~ shall, except as herein provided, cease to be a member of the Association. A late fee of \$20.00 shall be assessed for dues not received by September 30.

Section 3. The Board of Directors may increase or decrease initiation fees, transfer fees, and/or annual dues singly or collectively, by not more than 10% in any one year. If the Board of Directors propose an increase or decrease in initiation fees, transfer fees, and/or dues in excess of 10%, it must be approved by affirmative vote of not less than two-thirds of the voting grade members voting by letter ballot, in which balloting a majority of the eligible voting grade members vote thereon.

Section 4. On application from any member, the Board of Directors may, at its discretion and for cause, cancel part or all current dues and/or assessments of the member or extend the time of payment of the current dues.

Section 5. Additional funds required to carry on the activities of the Association may be raised through assessments which shall not exceed the annual dues for any one fiscal year. Any assessments proposed by the Board of Directors shall be referred to the voting grade members by letter ballot. If two-thirds of those voting, vote favorable, provided at least 50% of the voting grade members vote, the assessment shall be declared carried.

Section 6. The Board of Directors is empowered to receive contributions from any source, provided the funds so received are used to further the aims and objectives of the Association.

Section 7. The fiscal year of the Association shall be from the first day of June to the last day of May of the following calendar year.

ARTICLE IV

OFFICERS & ELECTED REPRESENTATIVES

Section 1. The officers shall be President, President Elect/Vice President, and Treasurer.

Section 2. The Board of Directors shall consist of seven (7) voting grade members which shall include the three (3) officers, and four (4) directors. One of the directors shall be the last available Past President.

Section 3. The President Elect/Vice President and two (2) Directors shall be elected annually by the voting grade members.

Section 4. The President Elect/Vice President shall be elected for a three year term: one-year to serve as President Elect/Vice President, then serve the following year as President, and serve the final year as a member of the Board of Directors as the Past President.

Section 5. The two (2) Directors elected annually shall be elected for terms of 2 years. One of the two (2) Directors shall be elected as Secretary/Treasurer. The first year of service shall be as the Association Secretary/Historian. The second year of service shall be as the Association Treasurer. The other elected Director in the second year of service shall be appointed as the Association representative to the Utah Engineers Council.

Section 6. Directors shall be ineligible to succeed themselves.

Section 7. Vacancies in the Board of Directors shall be filled as follows:

- a. Vacancy of a Board member in their first year of service: The Board of Directors shall appoint a voting grade member to fill the remaining term.
- b. Vacancy of a Board member in their second year of service: The Board member designated to fill the vacated position the following fiscal-year, shall be appointed by the Board of Directors to fill the vacated position (i.e.: Vice President replaces vacated President, Secretary/Historian replaces vacated Treasurer). This individual will continue to serve the following fiscal-year in the same position. The then vacated first-year position shall be filled per the above paragraph.
- c. Vacancy of a Past President: The most recently available past president shall be appointed by the Board of Directors to fill the remaining fiscal-year position of Past President.

Section 8. One voting grade member shall be elected as a representative to the Utah Seismic Safety Commission. This representative shall be elected by the voting grade members for a term of two (2) years. The Utah Seismic Safety Commission Representative may not hold any other current elected office within the Association. If this position is vacated, the Board of Directors shall appoint a voting grade member to fill the unexpired term of service.

ARTICLE V

NOMINATIONS AND ELECTIONS OF OFFICERS & REPRESENTATIVES

Section 1. The election of the President Elect/Vice President and two (2) Directors shall be conducted by ballot prior to the Annual Business Meeting of the Association in the Month of May, as described in Section 3 below. The election of the Utah Seismic Safety Commission Representative shall be held bi-annually in conjunction with the annual election.

Section 2. Candidates for the offices of President Elect/Vice President, Director, and Utah Seismic Safety Commission Representative shall be nominated and elected in accordance with the following procedure:

- a. ~~A Nominating Committee consisting of five (5) voting grade members shall be nominated and elected by paper ballot at the March meeting. Nominations for this committee shall be made as indicated in subsection b below. Incumbent Officers, Directors, and members of the Nominating Committee for the previous year are ineligible for the current Nominating Committee except~~

as follows: The President Elect/Vice President shall be chairperson of the Committee and one incumbent Director may be elected a member of the Nominating Committee.

- a. The Nominating Committee shall consist of five (5) voting grade members. Four (4) committee members shall be elected as noted below, and the President Elect/Vice President shall be chairperson of the Committee. Members of the Nominating Committee for the previous year are ineligible for the current Nominating Committee. Only one incumbent Director may be elected a member of the Nominating Committee. This Director may serve even if on the Nominating Committee for the previous year.
- b. Only voting grade members shall be nominated to the Nominating Committee. Prior to March 1, the Board of Directors shall select eight (8) nominees for the Nominating Committee. In addition to the nominees selected by the Board of Directors, members of any grade may also submit, to the President Elect/Vice President, nominees for the Nominating Committee. These names must also be submitted prior to March 1.
- c. ~~Prior to the March meeting, the names of the nominees for the Nominating Committee shall be sent to the members informing the membership of the intent to elect a Nominating Committee at the March meeting. The date, time, and location of the March meeting shall also be given. At the direction of the Board of Directors, the election of the nominating committee may be by electronic or paper ballot conducted prior to March 20, or it may be by paper ballot conducted at the March meeting. If it is to be conducted at the March meeting, then members must be notified prior to the March meeting of the intent to elect a Nominating Committee at the March meeting.~~
- d. ~~At the March meeting, additional nominees for the Nominating Committee may also be made. Voting grade members shall vote by paper ballot for four (4) from at least eight (8) nominees. The four (4) receiving the highest votes shall be declared elected to the Nominating Committee. Service on this Committee shall not affect a voting grade member's eligibility for office.~~
- e. Before April 2- 9, the Nominating Committee shall report its nominations for office - one name for President Elect/Vice President and one name for each Director and Utah Seismic Safety Commission Representative to be elected. This report shall be sent to the MEMBERS before April 9- 12.
- f. Up to the April general membership meeting, additional nominations may be made by petition to the President Elect/Vice President of at least 5% of the voting grade members.

Section 3. Before May 1, all voting grade members shall be mailed a ballot listing the nominees for the various offices along with a plain envelope and an outer envelope stamped "Ballot". The marked ballot shall be sealed in the plain envelope, enclosed in the outer pre-addressed envelope, which shall be signed by the voter, and mailed, to be received in the Association office before noon of the day of the Annual Business Meeting in May. The ballots shall then be counted and those nominees receiving the highest votes shall be declared elected at the Annual Business Meeting. In case of a tie, the President Elect/Vice President shall cast an additional and deciding vote.

ARTICLE VI POWERS AND DUTIES OF OFFICERS, AND BOARD OF DIRECTORS & ELECTED REPRESENTATIVES

Section 1. The President shall preside at all meetings of the Association and of the Board of Directors. The President shall be ex-officio member of all committees.

Section 2. The President Elect/Vice President shall fulfill the duties of the President in the President's absence. In the event of the President's death or resignation, the President Elect/Vice President shall perform the duties of President.

Section 3. Minutes of the Association's Annual Business Meeting and of its Board of Directors' meetings shall be taken by the Secretary/Historian or his/her delegate. A copy of such minutes shall be preserved by the Secretary/Historian and sent to the membership as deemed necessary by the Board of Directors.

The Treasurer shall be the custodian of all funds and financial records of the Association and shall make all disbursements when authorized by the Board of Directors. Financial reimbursements may be made to officers, Directors, or committee representatives by the Board of Directors for the expenses incurred on behalf of the Structural Engineers Association of Utah. All checks shall be signed by 2 officers.

Section 4. The Board of Directors shall direct and control the affairs of the Association, and appoint appropriate committees, one of which shall be an auditing committee to review all financial transactions for the previous fiscal year prior to turning the records over to the new fiscal year's officers.

Section 5. The Utah Seismic Safety Commission Representative shall represent the interest of the Association as determined by the Board of Directors, shall attend Utah Seismic Safety Commission meetings as required, shall fulfill other duties and responsibilities pertinent to the elected position as directed by the Board of Directors, and shall report to the Board of Directors all pertinent information from the Utah Seismic Safety Commission.

ARTICLE VII MEETINGS

Section 1. Meetings of the Association shall be held at the call of the Board of Directors.

Section 2. Five Directors shall constitute a quorum of the Board of Directors.

Section 3. The Board of Directors shall meet at least once a month. Special meetings may be called by the President.

Section 4. The Annual Business Meeting of the Association shall be the general membership meeting in the month of May each year.

Section 5. Robert's Rules of Order as latest revised shall govern all parliamentary procedure not otherwise provided for by these By-laws.

ARTICLE VIII AMENDMENTS

Section 1. Amendments to these By-laws may be initiated by the Board of Directors, or petition of at least 10% of the members. The Amendment shall be adopted only upon affirmative vote of not less than two-thirds of the voting grade members voting by letter ballot in which balloting a majority of the voting grade members vote thereon.

BULLETIN BOARD

BULLETIN BOARD SPECIAL FEATURE

Each month this year SEAU will feature recent building code developments and design requirements. This month our focus is on:

WHAT HAS HAPPENED TO THE 1/3 INCREASE IN ALLOWABLE STRESS ?

by Jerod Johnson

Among the AISC referenced standards in the newly adopted IBC 2003 is *ASD Supplement No. 1, December 17, 2001*. Most of the information found in this supplement is trivial to us as structural engineers. However, there is one significant change of which we must all become aware and incorporate into our daily steel allowable stress design procedures. For many years Allowable Stress Design (ASD) has allowed a 1/3 increase in allowable stress to account for the transient nature of temporary loads. The rationale behind this is simple; the likelihood of two or more transient loads reaching their maximum value at the same finite point in time is very small. Hence, increasing the allowable stress in members supporting multiple transient loads makes good sense. Notwithstanding this concept, *ASD Supplement No. 1, December 2001* very deliberately removes the allowable 1/3 increase in stress for multiple transient loads.

To understand why the code writers of AISC removed the 1/3 increase in allowable stress, it is necessary to study the history of load combinations prescribed by UBC, ASCE 7, and other building standards. As late as the 1994 Uniform Building Code, load combinations were simply:

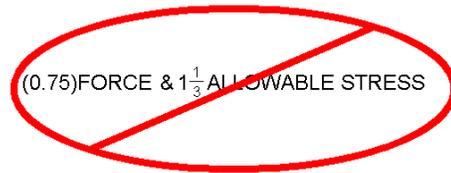
$D + L$	$D = \text{Dead Load}$
$D + L + (W \text{ or } E)$	$L = \text{Live Load}$
$D + L + W + S/2$	$W = \text{Wind Load}$
$D + L + S + W/2$	$E = \text{Earthquake Load}$
$D + L + S + E$	$L_r = \text{Roof Live Load}$

(Hereafter referred to as Group A load combinations.)

These load combinations were based on the assumption that structural design would typically follow allowable stress based procedures and provided a 1/3 increase in allowable stress for any combination involving wind or earthquake loads.

In ASCE 7-93 similar load combinations for allowable stress design are listed with provisions allowing for a 0.75 multiplier for portions of the load combinations dealing with transient loads. The use of the 0.75 factor follows the same principles mentioned previously for multiple transient loads acting

simultaneously. ASCE 7 - 95 and ASCE 7 - 98 reflect these same load combinations, including the 0.75 multiplier, but explicitly state that the 0.75 multiplier cannot be used simultaneously with an increase in allowable stress. Creative (yet uniformed) use of these previous codes may have in fact enabled "double dipping" by taking an increase in allowable stress while also reducing the load by 25%. In recent publications, code officials have made it abundantly clear that it is inappropriate to use both.



In the 1997 Uniform Building Code, the primary load combinations for allowable stress design are:

- D
- $D + L + (L_r \text{ or } S)$
- $D + (W \text{ or } E/1.4)$
- $0.9D \pm E/1.4$
- $D + 0.75[L + (L_r \text{ or } S) + (W \text{ or } E/1.4)]$

(Hereafter referred to as Group B load combinations. These equations are not unlike those of the recent IBC 2000 primary load combinations for allowable stress.)

UBC 1997 and IBC 2000 explicitly state that the increase in allowable stress is not permitted when using Group B combinations (Note the 0.75 factor in the last combination). Nonetheless, UBC 1997 lists combinations similar to those of Group A shown previously as an alternate for allowable stress procedures for which the increase in allowable stress is appropriate (Note the lack of the 0.75 factor in Group A combinations).

ASCE 7-02 (adopted by reference in IBC 2003) has completely abandoned Group A load combinations for allowable stress design and lists Group B combinations exclusively. Hence ASCE 7-02 does not typically permit an increase in allowable stress. Likewise, IBC 2003 lists load combinations consistent with Group B but lists Group A combinations as an alternate. However, since the IBC 2003 has also adopted *ASD Supplement No. 1 December 17, 2001*, the 1/3 increase in allowable stress (A.5.2 of *ASD - 89'*) is no longer applicable.

In summary, if you are using the 'older' set of load combinations (Group A) with which you have typically taken a 1/3 increase in allowable stress, you will no longer be allowed the 1/3 increase and your structures will become heavier accordingly. However, if you use

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the newer (Group B) combinations, the weight of your structures should not change significantly since the 1/3 allowable increase is represented as a 0.75 factor in the load combination. If you wish to steer clear of being labeled by your clients as “too conservative”, use of the Group B combinations might be in order. As an alternative, you might consider using strength design procedures.

As with many other code issues, officials have made a gradual transition from one set of standards to another. Incorporation of the 0.75 load factor and removal of the 1/3 increase in allowable stress is an example of this. This change appears to make load combinations for use in allowable stress design more consistent with load combinations of strength design, which appears to make sense, considering that rates and probabilities of load application should relate directly to the load itself and not to the material providing resistance. Though the 1/3 increase in allowable stress has been removed from ASD, it still may be used in accordance with other referenced standards (e.g. ACI 530).

For more information regarding this issue, refer to the article *The One-Third Stress Increase, Where is it now?* in the October 2003 issue of Modern Steel Construction.

SEAU MEMBERSHIP APPLICANTS

The following individuals have submitted an application for approval by the SEAU membership committee for new members:

Larry T. Boyer – Professional
Leandro Buriek – Professional
Terry K. Wright – Professional

VERCO
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DESIGN OF RELIANT STADIUM RETRACTABLE ROOF STADIUM

Date: Thursday, January 15, 2004

Time: 5:30p.m. Social Hour

Presentation 6:00 p.m.

Presenter:

Lawrence G. Griffis P.E. Senior Principal, President - Structures Division

Walter P. Moore and Associates, Inc.

EMCB Room 103

University of Utah

Larry Griffis' projects won the "Eminent Conceptor Award," the top engineering accomplishment in Texas, eight times in a 14-year period, including four consecutive years 1989-1992. He was recently named to the National Academy of Engineering, the highest praise bestowed by peers in the industry. Mr. Griffis will speak about the particular design challenges of a large retractable roof stadium structure and the use of tall shear walls combined with steel trusses to create moment frame behavior.

STRUCTURAL ENGINEERS ASSOCIATION OF UTAH

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