

2012-212878

THE STATE OF SOUTH CAROLINA
IN THE COURT OF APPEALS

APPEAL FROM YORK COUNTY
Court of Common Pleas

John C. Hayes, III, Circuit Court Judge
Civil Case No. 07-CP-46-1889

RECEIVED

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SC Court of Appeals

S.C. Court of Appeals Case Tracking No.: 2009-137246

Lawrence Keeter, Ronald Keeter, and Rebecca
Keeter.....Appellants/Respondents,

v.

Alpine Towers International, Inc. and Ashley Sexton.....Defendants

Of Whom, Alpine Towers International, Inc. is.....Respondent/Appellant.

SUPPLEMENTAL
RECORD ON APPEAL

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IN THE COURT OF COMMON PLEAS
SIXTEENTH JUDICIAL CIRCUIT
C.A. No.: 2007-CP-46-1889

Plaintiffs,)

vs.)

ORDER¹

Defendants.)

Rule 15, South Carolina Rules of Civil Procedure (SCRCP) provides for amendment of pleadings to be "freely given when justice so requires and not prejudice any other party." An amendment to a Complaint is not allowed in order for a party to state a new or different cause of

¹ Due to the exigency of time, the Court takes little, if any, pride of authorship in this Order.

action after the statute of limitations has run. Lifschutz Fast Freight, Inc. v. Haynesworth, Marion, McKay and Guerdard, 324 S.C. 645, 486 S.E.2d 14 (Ct. App. 1997).

As stated in Parker v. Spartanburg Sanitary Sewer District, 362 S.C. 276, 607 S.E.2d 711 (Ct. App. 2005):

A motion to amend is addressed to the sound discretion of the trial judge. *Stanley v. Kirkpatrick*, 357 S.C. 169, 592 S.E.2d 296 (2004); *City of North Myrtle Beach v. Lewis-Davis*, 360 S.C. 225, 599 S.E.2d 462 (Ct. App. 2004). Leave to amend pleadings pursuant to Rule 15, SCRCF, shall be liberally and freely given when justice so requires and does not prejudice any other party. *Crestwood Golf Club, Inc. v. Potter*, 328 S.C. 201, 493 S.E.2d 826 (1997); *Pruitt v. Bowers*, 330 S.C. 483, 499 S.E.2d 250 (Ct. App. 1998). The prejudice Rule 15 envisions is a lack of notice that the new issue is going to be tried, and a lack of opportunity to refute it. *Tanner v. Florence County Treasurer*, 336 S.C. 552, 521 S.E.2d 153 (1999); *Lewis-Davis*, 360 S.C. at 232, 599 S.E.2d at 465. The party opposing the amendment has the burden of establishing prejudice. *Foggie v. CSX Transp., Inc.*, 315 S.C. 17, 431 S.E.2d 587 (1993); *Pruitt*, 330 S.C. at 489, 499 S.E.2d at 253. This rule strongly favors amendments and the court is encouraged to freely grant leave to amend. *Jarrell v. Seaboard Sys. R.R.*, 294 S.C. 183, 363 S.E.2d 398 (Ct. App. 1987). (362 S.C. at 286).

In considering potential prejudice to the opposing party, the court should consider whether the opposing party has had the opportunity to prepare for the issue now being raised formally. Soil & Material Engineers, Inc. v. Folly Associates, 293 S.C. 498, 501, 361 S.E.2d 779, 781 (Ct. App. 1987).

Here, based on the presentations in chambers, it appears to the Court that while the denomination of the additional cause of action states a new ground for recovery it does not affect the factual issues being litigated. Though the amendment does add a new legal theory for recovery, Alpine has not made a case that it cannot prepare to meet the new legal issues.

Rule 15, SCRCF provides:

Whenever the claim or defense asserted in the amended pleading arose out of the conduct, transaction or occurrence set forth or

attempted to be set forth in the original pleadings, the amendment relates back to the date of the original pleading.

Thomas v. Grayson, 318 S.C. 82, 456, S.E.2d 372 (S. Ct. 1995) provides:

The test to be used in determining whether or not an amendment should be allowed to relate back under Rule 15(c) to the date of the original pleading to avoid the statute of limitations, is found in the language of the Rule; specifically, whether the claim or defense asserted in the amended pleading arose out of the conduct, transaction or occurrence set forth in the original pleading. 318 S.C. at 88.

Plaintiffs requested amendment arises out of the same conduct and occurrence set forth in the original Complaint.

Wherefore, Plaintiffs are allowed to amend their Complaint as proposed in their motion to do so dated May 7, 2009.

IT IS SO ORDERED.


 John C. Hayes, III
 Chief Administrative Judge #3

May 20, 2009
 York, South Carolina

1 A CORRECT.

2 Q AND WHAT ROLE DID MR. CONANT PLAY IN THE ACQUISITION
3 OF THE TOWER, IF YOU KNOW?

4 A I MEAN I'M SURE WE CONSULTED WITH HIM, BUT AS BEYOND
5 THAT I CAN'T RECALL.

6 Q OKAY. DO YOU KNOW WHAT MR. CONANT'S EXPERIENCE IS OR
7 MAY HAVE BEEN AT THAT TIME WITH REGARD TO ALPINE TOWERS?

8 MR. HARPOOTLIAN - YOUR HONOR, I'D OBJECT TO
9 HEARSAY.

10 MR. SALANE - I'M ASKING FOR HIS DIRECT
11 KNOWLEDGE.

12 MR. HARPOOTLIAN - WELL, IF HE WAS THERE WHEN HE
13 MET --- WHEN THEY MET WITH HIM, THAT'S FINE, BUT ANYTHING
14 ELSE WOULD BE SOMETHING --- SOMETHING SOMEBODY TOLD HIM --
15 -

16 MR. SALANE - OH, I'M SORRY. I'M SORRY.

17 MR. HARPOOTLIAN - --- HEARSAY.

18 MR. SALANE - I UNDERSTAND WHAT YOU'RE SAYING.
19 I'M NOT ASKING HIM ABOUT ---

20 THE COURT - JUST DON'T GO INTO HEARSAY. GO
21 AHEAD. ASK THE QUESTION AND LET'S SEE WHERE WE ARE.

22 MR. SALANE - RIGHT.

23 Q WHAT I'M ASKING YOU IS, DO YOU KNOW WHAT MR. SCOTT --
24 - WHAT MR. CONANT'S EXPERIENCE WAS WITH TOWERS AND
25 CLIMBING TOWERS AND CHALLENGE COURSES?

THE ALPINE TOWER
INSTRUCTOR'S MANUAL

the Alpine Tower



PENGAD 800-431-4889

PLAINTIFF'S
EXHIBIT

10

NO.

6/16/09

0848

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Alpine Towers, Inc.

INSTRUCTOR'S MANUAL

**ALPINE TOWER I
ALPINE TOWER II**

Third Edition
1997

0849

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DEDICATION

This manual is dedicated to Karl Rohnke, whom many consider the father of ropes courses in this country.

Karl's ropes course background began at the North Carolina Outward Bound School in the late 1960's. He and a cast of others developed the Project Adventure curriculum in 1971 for the Hamilton-Wenham Regional High School in Massachusetts. Originally, the curriculum had a strong foundation of Outward Bound methodology and techniques, but soon developed into a very distinct and unique adventure program more aptly suited for school settings.

With never-ending creativity, humor and enthusiasm, Karl plays a key role in the current development of ropes courses and initiative games, proliferating ideas and techniques to educators through workshops and publications.

care, respect and understanding for one another as they work together to reach a common goal.

PHILOSOPHY BEHIND THE ALPINE TOWER EXPERIENCE

The Tower experience provides distinct program opportunities for groups, individuals and partners.

Group problem solving initiatives, accomplished at the Tower base, focus specifically on the following objectives:

- teamwork • trust • fun • cooperation • communication • respect for others

The Tower presents individuals with the same challenges as rock climbing and traditional high ropes course elements. The dynamics of the climber/belayer relationship achieves similar objectives as the group initiatives, as well as the following individual goals:

- enhances self-esteem
- promotes physical fitness
- encourages adventure, risk-taking and innovation
- encourages participant to simply try one's best
- serves as a metaphor for discussing lessons learned: trust, communication, teamwork, failure, perseverance

And finally, the Tower provides an intense partnering experience which dramatically highlights the teamwork, cooperation, trust, communication, adventure and, perhaps most importantly, compassion and respect.

It is sometimes difficult to design educational activities that foster compassion and respect. The pairings concept on the Alpine Tower is an extension of the popular and highly successful event of rock climbing. Not only does it include the traditional climber/belayer relationship it also includes the added variable of partners, physically connected, ascending the tower and its obstacles together. The true potential of the Alpine Tower experience is reached when individuals from differing cultural backgrounds develop compassion,

I. ORIGINS OF THE ALPINE TOWER

Introduction to the First Edition

The first Outward Bound School in the United States was founded in 1963 in the mountains of Colorado. Tap Tapley built the first ropes course at the Colorado Outward Bound School's Marble basecamp. It was a beautiful structure, featuring ropes, lashings, and logs, situated in a grove of aspens.

As other Outward Bound Schools began to spring up around the country during the latter part of the '60's, most contained high ropes course events and ground-level group problem solving initiatives. Many former staff and students went on to develop a variety of programs based on Outward Bound philosophy and methodology. These adaptive programs almost always possessed ropes course activities.

At Outward Bound, the ropes course was originally used in the initial phase of a 26-day course as a tool to assess strength, agility, stamina and character traits of the students, prior to the start of the rigorous Training Expedition. Today, ropes courses are used in all phases of Outward Bound programs for a variety of objectives with all types of populations.

Prior to and during the ropes course interest that the American Outward Bound Schools were generating, many foreign Outward Bound programs, universities, camps and the military had developed their own versions of ropes activities. Although Outward Bound played a large role in the past and current development of such activities, it cannot be credited with the invention of ropes courses and initiatives for use in promoting personal growth.

At the North Carolina Outward Bound School (NCOBS), John E. S. Lawrence constructed the original ropes course in 1967 for the school's first season of operation. Karl Rohnke built a second course that would be used through the 1972 season. (It is interesting to note that each of

these courses were located at the current site of Outward Bound's Kurt Hahn Leadership Center – the home of many innovative and exciting workshops for educators.) Both course designs were similar and served as the pattern for many ropes courses for years to come. Early structures typically began with an inclined log, and contained a Balance Beam, Burma Bridge, Kitten Crawl, Commando Crawl and a Tarzan Swing or Zip Wire finale.

Karl moved to Massachusetts in 1971 to help develop the Project Adventure curriculum – a highly successful and often imitated approach to self awareness and insight into others. Ropes courses and initiative construction became a major service of Project Adventure, with over 1,000 courses built to date. Today, it remains the largest and most active builder of ropes courses in this country, with a wealth of available publications covering many aspects of adventure-based education.

Wanting to try my own hand at designing and building ropes courses, I was given an opportunity in 1975 to develop a course for the new NCOBS base camp – Green Cove - near Franklin, North Carolina. I wanted to construct a high course, on level ground, which would utilize a new self-belay technique ("Lobster Claws" and safety cables) developed specifically for this course. The new course was such a success that a similar high structure was built at the Table Rock base the following year. It remains in use to this day and over 13,000 NCOBS students of all shapes and sizes have completed the course.

My main reason for wanting to build a high course was to create a challenging initiative appropriate for men and women, as opposed to the early courses designed specifically for young men – Outward Bound's primary audience in the '60's. The new design presented a more equal challenge for all, as events were geared more toward mental than physical challenges. Increased self esteem was gained by participants who were able to complete a big, high group adventure – especially when an individual's or group's ability to succeed was in doubt.

and properly maintained high ropes course in trees, many programs do not or cannot invest the time and resources in proper tree care, and unhealthy trees lead to serious safety problems.)

In 1987, I designed an eighty foot tall tripod tower, constructed from utility poles, that would provide an intense experience for individuals as well as a team of four connected participants. The design eventually evolved into a versatile fifty foot hourglass tower utilizing two interlocking tripods. (This hourglass model was similar in design to a "logs and lashings" structure I constructed as a Boy Scout in the 1960's.)

The new Alpine Tower design provides ropes course experiences for individuals and small groups, allows programs to teach the basics of rock climbing and mountaineering techniques, and offers a wide variety of group problem solving initiatives at the Tower's base. The Tower height and route options allow for challenges and variations to meet the needs of a diverse range of people, and provide participants with a ropes course that may be revisited many times. Giant Breathtaker swings or long zip wire finales are options, and auxiliary events, built in conjunction with trees or vertical poles, may be added to provide participants with additional challenges. (Note: if adjacent trees are used and their health is suspect in later years, auxiliary events may be disconnected and the tower is preserved.) Lastly, the Tower requires very little maintenance, as tree health and safety are no longer a concern, and a safe life span of 15 to 20 years may be expected.

I'm most excited about this particular Tower model. It has generated a great deal of interest from a wide variety of organizations - those who wish to build their first course, some who do not have healthy trees in which to build, or those who simply see the advantages of the Tower over traditional ropes courses. Only time will tell what will spring from this concept.

Mike Fischesser
December 1989

Another benefit of the new design was flexibility in management. Earlier courses often required instructors to be confined to a belay station. Lobster claws attached to harnesses and clipped to an overhead safety cable eliminated belay stations, and more importantly, promoted self-reliance in the participant. This same safety system is now widely used in programs throughout the country.

In the 1970's and early '80's there was a steady rise in ropes course construction in the United States, and several ropes course construction firms came into being. Next to Project Adventure, the most prolific builders were individuals wishing to design and develop ropes courses and initiative events for their own programs. As ropes course interest soared into the late '80's, so did the number of home-built courses. Many were well designed, safe, and properly supervised. However, an alarmingly large number of poorly designed, unsafe, and miss-managed ropes courses also existed. My concern led to the first Ropes Course Symposium, held at the Kurt Hahn Leadership Center of NCOBS in 1988. This productive session covered a wide range of topics, from quality facilitation and processing to tree attachment techniques. The proceedings from this four-day event were distributed to many organizations in an attempt to increase awareness toward safe and high quality ropes course construction and programming.

After designing the first high courses at NCOBS, I began to design, construct and evaluate courses for organizations outside of Outward Bound. Eighteen years of work with Outward Bound provided me with useful information for addressing ropes course issues ranging from environmental considerations to safety concerns. I began specializing in unique designs like the Mankato State University tripod towers, the Cooperstown indoor gym course (constructed over a pool), aerial fitness trails for sports clubs and the pairings course on the ship Peking for the New York City Outward Bound Center. On the latter course, the pairings concept was so powerful and successful that I began to formulate a design that would be strong enough for a two-person experience, as well as encompass the concept of traditional tree and pole courses. (While there is nothing better than a well-designed

Introduction to the Second Edition

Time has passed and new ideas have sprung! Since writing the Introduction to the First Edition of The Alpine Tower Instructor's Manual in 1989, a number of new designs and innovations have occurred, including Teamwork Towers and the Alpine Tower II and III. The Teamwork Towers design (aimed at team building) essentially consists of two large, forty foot tripods loaded with events. The Alpine Tower III features climbing wall surfaces within the tower structure. But by far the most exciting Tower modification is the Alpine Tower II, which offers universal programming for diverse groups including people with disabilities.

As this Second Edition goes to press, 39 organizations are conducting Alpine Tower programs. The first Alpine Tower Symposium was held in May 1993 and another is scheduled for 1994. An Alpine Tower Newsletter is periodically sent to the owner organizations. Existing Towers and their safety management systems are receiving regularly scheduled safety reviews from ATI reviewers.

The Tower structures and related safety systems are proving to be safe, successful and versatile enough to meet the goals of both groups and individuals.

On a national level, our field is becoming increasingly professional with the incorporation of the Association for Challenge Course Technology, which also conducts symposiums and publishes newsletters.

It will be interesting to observe how challenge courses will be utilized by a growing number of diverse organizations throughout the rest of the decade.

Mike Fischesser
December 1993

Introduction to the Third Edition

We have included the introductions from previous editions in this third revision as both contain interesting historical commentary regarding the creation and development of various Alpine Tower designs. Here at Alpine Towers, it is gratifying to look back and reflect on our role in the growth of the adventure education industry.

The original Alpine Tower Adventure Course Complex has been expanded to include the Caribbean Ropes Course featuring tree houses and other unique elements.

The Alpine Tower II has been updated with new events making it even more appropriate for Universal Programming.

In 1995, Alpine Towers, Inc. created the ATI Climbing Wall Division to help address the nationwide growing interest in artificial climbing walls. Since then, ATI has designed and built a number of innovative outdoor walls, featuring the Carolina Wave and the Carolina Straight Wall.

In summary, there are now 83 Alpine Towers in existence nationwide in organizations offering safe and high-quality programs.

Mike Fischesser
February 1997

safety systems are in place. The committee usually writes an annual report containing observations and recommendations.

B. Management Stretch

One of the most dangerous problems facing adventure education programs today is "management stretch." This particularly applies to the world of non-profit organizations, where staff are committed to strong ideals aimed at making the world a better place. Often, these people take on more responsibilities than can be accomplished with safety and quality. Signs of management stretch include the following:

- reactive vs. proactive mode of operation (e.g. staff are continually "putting out brush fires")
- communication and/or personnel problems
- lack of available program planning time
- absence of current short-term and long-range plans

C. Program Isolation

Program isolation (which may be related to management stretch) is another dangerous situation of which one must be aware. When time is not reserved by program management for networking or establishing opportunities for professional and personal development, a program may easily fall behind current industry standards. Such situations will quickly become evident during program reviews, external investigations of incidents/accidents, or gatherings of industry peers. As a preventative means of addressing such situations, Alpine Towers, Inc. offers symposiums which focus on program standards, methodology and education.

D. Staffing

Recruiting, screening, hiring, and training of staff all play a critical role in the safety matrix. Exemplary staff are the key to a safe, professional and meaningful experience for the participant.

II. MANAGING SAFETY SYSTEMS

There is much more to ropes course safety than simply checking carabiners or monitoring belays. Proper program safety management originates with the trustees or supporters of the program. A professional group of well-intentioned people are usually responsible for selecting the Director of an organization. The Director is responsible, sometimes with the assistance of trustees, for keeping the program in line with the overall guiding mission statement. Safety must be a priority within the statement.

The Director normally hires a Program Director who, along with associates, formulates policies, guidelines, hires and trains staff, and appoints a Coordinator to be operationally responsible for managing all aspects of the Alpine Tower. A proper safety attitude from mid-level program managers typically affects the safety attitude of all field staff. In the industry of adventure based education, safety is of paramount importance. Although many of the activities are "perceived" to be dangerous to participants, program managers often tell clients there is very little "real" risk. Program managers must be on top of all aspects of program quality and safety to insure the accuracy of this assertion.

The following topics are meant to provide a checklist, as well as offer current industry standards for use in assessing a broad range of risk management systems relating to safe implementation of program activities.

A. The Safety Committee

Most adventure-based organizations have a safety committee comprised of a group of trustees, program administrators/staff and local professional contacts. The role of the safety committee is to monitor and review all aspects of the program, from food services to transportation to adventure activities, and to insure that adequate

Selecting older, more mature staff (24+ years) may be the single most important criteria in staffing considerations. Instructors with a variety of life experiences are better equipped to facilitate a meaningful debrief session, teach technical skills and monitor program safety. The ideal outdoor instructor has built a strong foundation of judgment through long experience in climbing, paddling and camping. With the growing popularity and proliferation of outdoor education programs today, and an increased demand for personnel, it is more and more difficult to acquire staff with ideal characteristics.

Your program should have written criteria for staff selection, annual staff training sessions and regular written evaluations. Each staff person's file should contain an application, reference letters, contracts, driver test forms, evaluations and annual professional development updates. (See the Staff Training section for more information on this topic.)

E. Safety Reviews and Structural Inspections

Safety reviews and inspections conducted by trained ATI Reviewers occur annually in order to meet the national standards of the Association for Challenge Course Technology (ACCT). A full, comprehensive review is performed the first year, inspections of the structure then occur in years two and three, and the comprehensive review is repeated in year four. The review results in an extensive report containing narratives pertaining to staff, training, design structures, etc. These reviews provide excellent opportunities for ATI to assess a program's safety and standards, and to share information from other program reviews.

If you can prevent or lessen the chance of an incident/accident by holding annual reviews, it is well worth the investment of time and resources. (For more information on safety reviews see Appendix N: Most Common Safety Review Recommendations.)

F. Assessing Participants

It is very important to carefully screen all participants prior to an Alpine Tower exercise. At a minimum, your program should have signed and completed "acknowledgment of risk" (a.k.a. "consent") forms and medical history forms in hand/on file before allowing participation in any strenuous adventure activities. In the case of a minor, a parent or legal guardian must also sign the forms.

The "acknowledgment of risk" form provides the participant with information regarding the nature of the upcoming activity and the need to assume responsibility for oneself. In the oral safety briefing prior to the event, the participant must be made to understand the gravity of the safety procedures, the need for compliance, and the subsequent consequences of non-compliance.

Advice from legal counsel, in-house safety committees, and related organizations will help determine the extent of medical screening. It is a very complicated issue. At a minimum you will want to know the following:

- history of pre-existing injury
- medications currently in use
- resting pulse rate
- history of high or low blood pressure
- history of heart problems
- current level of activity
- past or present psychological treatment (e.g. counseling suicide ideology)
- insurance information (in most cases)
- emergency contact person

Example of screening situation: Preliminary research indicates that participation in anxiety-producing activities, such as challenge courses, can considerably increase the heart rate in some individuals.

A program may wish to add or modify certain Tower procedures to meet their individual program needs. However, any deviation in safety policies should be discussed with Alpine Towers, Inc. prior to implementation. Use of the Alpine Tower Instructor's Manual and program documentation is essential for professional, safe programming.

The Alpine Tower Newsletter should be disseminated to staff and filed in the special newsletter notebook for reference purposes. It is the responsibility of program managers to stay abreast of, and adopt accordingly, policy or procedural changes documented in the newsletter.

I. Annual Safety Report

This report differs from the annual safety review report written by in-house safety committees or external safety review teams. The Annual Safety Report contains a compilation of data from all yearly accident/incident reports. This is an ideal tool for use in identifying trends within the program, and for in-house refresher training sessions.

It is better for staff to err on the side of reporting too frequently than not often enough. This first tendency often demonstrates a healthy attitude toward safety awareness and accident prevention. There are a number of accident report formats. If you wish to critique your own form, consider comparing it to a large sampling of forms from similar, reputable programs. (Note: The form used by Outward Bound USA is included as Appendix E.)

Please send copies of all Tower related accident/incident documentation to ATI. This allows us to identify and respond to potential problem areas, and helps us share information and developments with other organizations.

J. Moratoriums

As a field instructor, program manager or trustee, it is your responsibility to raise the caution flag if you have either an intuitive

A participant with a heart condition or heart disease indicated on his/her medical form should be carefully screened.

ATI recommends that all programs contact Wilderness Medical Associates (WMA) to obtain their Medical Screening Guide and consultation services at the following address:

Wilderness Medical Associates, RFD 2 Box 890, Bryant Pond, ME 04219
(207) 665-2707

G. Emergency Procedures

Staff should be well-versed in first aid, rescue techniques and emergency procedures in the event of problems while programming on the Tower. (Rescue techniques for tower evacuation are discussed elsewhere in this manual.) Programs must have an emergency plan outlining action steps – beginning at the instructor level, continuing through middle and upper management, and ultimately to key trustees (in the event of a serious injury or death). A critical component of the emergency plan includes the steps taken by the instructor to contact program managers and to contact/request additional medical assistance. Many programs have next-of-kin and media notification procedures in the case of a critical situation.

First aid kits should always be present at the site and easily accessible during Tower activities. Staff should be well trained in the use of the kit contents, which should be periodically reviewed by a physician and the safety committee.

H. Policies, Procedures, Documentation

This manual contains the safety policies and recommended procedures for use with the Alpine Tower. Ignoring a safety policy may result in a serious injury. *(Example of policy vs. procedure: policy: participants must tie in with a specific, properly tied knot; procedure: it is suggested that participants wear tennis shoes on the Tower.)*

feeling or absolute knowledge that safety systems are not up to industry standards.

Most program managers will experience this uneasy, intuitive feeling on occasion. In this situation, a single problem may be difficult to pinpoint. Often, a variety of systems need improvement, adding to the apprehension concerning the safety and quality of overall program delivery. Middle managers are particularly hesitant to respond to such feelings – either because they do not feel they have time to thoroughly study the situation, or because they fear actions such as canceled courses may lead to revenue loss or generate negative conclusions regarding their own leadership ability.

If you suspect that safety systems are not functioning properly, it is your responsibility to act accordingly – demand that colleagues set aside time to discuss the situation and call for a moratorium on either a particular activity or an entire program until a solution may be implemented. Delaying the process could ultimately result in a serious incident, injury or fatality.

K. Cause of Accidents

Studies in the field of outdoor adventure education (and in many other industries) have shown that a variety of factors can lead to accidents. Training staff to be aware of these conditions and the use of proper safety management systems will significantly lessen the chance of accidents, incidents and near misses.

The following comprise a partial list of factors. Managers are encouraged to brainstorm others with their employees during staff training sessions.

1. **Time Pressure** – Leading up to an event, allow adequate time for professional skills development; design program schedules that allow for extra time; remind staff that they always have the option to postpone or cancel an activity if time does not allow safe

or quality programming, or if they feel insufficiently prepared to deliver the program.

2. **Pleasing Others** – Avoid trying to please others (students, peers or supervisors) if pleasing others involves breaking policy or going against one's own good judgment (e.g. allowing students to swim on a hot day when swimming is not allowed; allowing a participant to zip down one of the tower guy cables – a practice which is strictly forbidden).
3. **Trying New Methods** – Experimenting with adventure education techniques, though sometimes acceptable, could result in an incident or accident. While attempting new methods, or modifying existing procedures and safety policies, staff have shown poor judgment in the past – sometimes out of complacency or boredom (e.g. setting up a new climbing route on a cliff without having pre-cleaned it).
4. **Lack of Proper Training and Experience** – With the growing number of outdoor education programs in the United States, qualified instructors are increasingly difficult to find. When well-rounded, seasoned instructors are scarce, any of the following situations may occur: inexperienced assistants or apprentices are promoted to positions of responsibility; new staff are asked to accept responsibility without the benefit of area specific/program specific orientation and training; unqualified personnel are hired to avoid canceling programs. Each of these situations is unacceptable. Do not allow this to happen in your program. Thorough, well-designed apprenticeships/assistantships are critical to proper staff development.
5. **Judgment and Maturity** – Personnel with sound judgment and maturity are the result of good staff selection, proper training and experience. When an emergency scenario unfolds, judgment and maturity are characteristics that will fundamentally affect the outcome (relinquishing a supervisory post to "show off" in front of the participants).

III. ALPINE TOWER I AND II: STAFF TRAINING

The importance of properly trained staff is emphasized in the previous section entitled "Managing Safety Systems." The purpose of this section is to highlight considerations for staff development and to provide a sample outline designed specifically for Alpine Tower staff trainings.

The Alpine Tower staff training (ATST) may be one segment of a larger training session spanning the organization's overall program. Managers experienced in designing trainings and orientations know to be mindful of the following tips:

- design training session to foster a sense of community among staff
- address the needs of both old and new staff
- avoid overloading staff – plan periods of free time each day
- intersperse physical/outdoor activity with indoor talk sessions
- encourage new staff to speak freely and ask questions
- emphasize the mission, philosophy, goals and objectives of the program

Assuming that mature and competent individuals have been hired and have already demonstrated proficiency (or will receive training) in first aid, emergency procedures and counseling, your staff is ready for the Alpine Tower training.

The following outline is merely a sample. Feel free to organize the material in a way that will meet the individual needs of your program, but be sure to cover each of the topics listed below.

L. Access Prevention

The Alpine Tower could be considered an "attractive nuisance" and proper precautions must be taken. "No Trespass" signs should be visible and placed at all possible access points. Insure that the access prevention devices on each of the tower legs are well maintained, locked and in good working order. Wrap the Knotted Rope around the Team Beam to prevent unwanted access. Always use 1/8" nylon cord for haul-lines rather than larger diameter cordage that might serve as a climbing aid. If trespassing is a continual problem, night lights, or fencing should be considered.

A. Goals of the ATST

1. to consider ways in which the Alpine Tower experience will mesh with the mission and goals of the program
2. to promote familiarity and comfort with Tower activities
3. to promote proficiency in rescue systems
4. to establish Tower management techniques
5. to establish processing/debriefing techniques

B. History of Ropes Courses in the United States

1. Outward Bound
2. Project Adventure
3. evolution of ropes course design
4. past problems and concerns
5. history of your program
6. history of the Alpine Tower
7. advantages of the Alpine Tower over other challenge course designs:
 - visually impactful design intrigues participants
 - additional events can be added
 - longevity -- programs can expect 15 to 20 years of safe service from their Tower
 - no worry about the health and safety of trees
 - very low annual maintenance
 - educational curriculums can range from one hour to 20 days in length
 - facilitators can easily increase or decrease the level of challenge to meet the individual needs of participants
 - participants can revisit the Tower numerous times for new and different challenges
 - partnering and individual challenges can be offered
 - small groups of 3 participants can function as a team
 - as many as 36 people (3 groups) can participate in low events simultaneously
 - easily modified to include people with disabilities

- participants are tied-in at all times – no transferring of ropes or carabiners
- three staff can safely supervise 18 participants
- simple rescue system
- access prevention devices prevent unauthorized access
- a growing number of participants have completed traditional ropes course activities at camps and schools; an Alpine Tower provides new and different challenges

C. Equipment

1. Harness

- familiarize with design
- adjust properly – first tighten waist belt while leg loops are loose, then tighten leg loops; leg loops should be back-threaded through buckle
- inspect stitching and abrasion points
- thread buckle properly (and improperly!)
- tie-in with rope – use follow through figure-of-eight knot
- review use of chest harnesses – to be worn by individuals whose shape (stomach and chest) does not allow the waist belt of the sit harness to snug down properly above the hip bones
- place harness properly - not over bulky clothing that could pull out during the climb and result in a loosened harness

2. Carabiner

- learn how to operate
- do not lock too tightly – review how to apply tension and how to loosen
- do not drop or toss
- make sure it remains locked while in use
- position properly – gate should be “down and out”

D. Inspecting the Tower

All staff must be shown some basic criteria for inspecting the Tower. At a minimum, staff should take a few minutes before each day's session to look at the Tower from the ground and make sure nothing has been affected by weather, high winds, earthquakes, flooding or vandals. Staff should be familiar with the tension in each of the guy cables and check the cables prior to each session. If cable tension has changed since the last session, it could be a sign that something is not right.

A staff member with long term continuity in the program, who can conduct monthly inspections, will be shown in more detail how to inspect the Tower, swing cable, swing poles, etc.

E. The Belay System

Note: Belay school provides an excellent opportunity to highlight the risks and consequences involved in neglecting to follow safety policies.

1. create overall picture, review purpose and set proper safety tone
2. teach figure-of-eight knot on a bight and follow through figure-of-eight knot
3. remove items in pockets, and jewelry from neck, wrist, and fingers; discuss potential dangers
4. instructor demonstration and questions - if done well, staff and students should be able to set up their own stations and begin practicing
5. belay monitor – discuss need to always use a monitor (with both hands on the rope) and demonstrate the level of control the monitor has as a back-up belayer
6. programs should require staff to check the belayer's and climber's systems prior to climbing and lowering; one method of doing this is to conduct a 5-point check; the staff member could stand directly beside the climber (not 30 feet away) and proceed as follows:

- inspect for fractures or defects
3. Rope
- definition of static rope (vs. dynamic rope)
 - care of ropes – do not step on ropes; define normal wear and tear; occasional washing; effect of ultra-violet exposure, heat and chemicals
 - inspect prior to use – check for weakening in rope (extreme wear, squirrel/mouse damage, chlorine damage) which could result in failure
 - nylon on nylon – never allow a moving/loaded rope to pass over a stationary strand of rope
 - coiling with craftsmanship
 - importance of Rope Use Log
4. Helmet
- proper fit – snug fit before chin strap attached; no “bonnets” on back of head
 - wear only when climbing or under Tower
 - care of helmets – do not sit on, drop or toss; occasional washing
 - inspect for fractures, broken rivets, stitching, buckle closure
5. Figure Eight Descender
- inspect for fractures or unusual grooving or sharp edges
 - care for descenders – do not drop or toss
 - operate correctly (and incorrectly)
 - connect to harness with locking carabiner
 - Russ Anderson/SMC descender has a 2 3/8" diameter of larger eye and is an ideal size for belaying with static ropes

- belayer ready, rope taut – “OK”
 - belayer’s anchor carabiner and belay device carabiner locked – “OK”
 - harness buckled and fitted properly – “OK”
 - climbing rope is not riding over another rope – “OK”
 - climber’s knot correct – “OK”
7. pendulums and lowering
- explain the potential hazard of “pendulums”
 - discuss entanglements
 - discuss danger of nylon on nylon when lowering
 - review sequence of asking permission prior to lower: harness and buckle secure? knot OK? rope clear of other ropes? belayer ready?
 - mention rescue procedure
 - demonstrate setting the rope for the intended route
 - demonstrate flipping the rope while climbing
8. demonstrate climbing techniques on the Tower
- body position: weight over feet; do not lean in
 - relax grip, trust feet and balance
 - partially contracted arms vs. fully extended
 - three points of contact
 - jams, stems, mantles
 - plan route, look ahead
 - rhythm and rate of climbing
 - do not out-climb belayer
9. commands - always use names with each command to prevent confusion
- belayer: “on belay, Sam”
 - climber: “belay on; climbing, Sue” (or “up rope/slack”)
 - belayer: “climb, Sam”
 - climber: (while en route) “slack;” “up rope;” or “falling, Sue”
 - instructor: (after ensuring that belayer is ready, rope is taut and positioned properly over the top

- rail, belayer's anchor & belay device carabiners are locked, harnesses are properly buckled & knots correctly tied) "*lower climber*"
 - climber: (upon arriving back to ground) "*off belay, Sue*"
 - belayer: "*belay off, Sam*"
10. while practicing belaying, have climber walk out past belay bench so belayer can work on belay technique
 11. after mastery of the belay technique, climber can go up a body's length from the ground on the Tower to give belayer practice catching a fall
 12. work on de-emphasizing reaching the top of the Tower (for the time being) and highlighting the importance of belay mastery
 13. after staff (and students) have demonstrated competency with the entire belay process they may begin working on Tower routes to the top – this allows individuals who have mastered belaying to remain active while others are still learning
 14. for programs using the Petzl GriGri belay device, the following safety policies apply:
 - staff must be trained in the proper use of the GriGri
 - perform initial pull test on climber's rope to insure proper threading
 - belay monitors are still necessary
 - staff must provide belay backup during initial lowerings and until belayer exhibits proficiency at lowering

F. Framing the Experience

Depending on your staff, you may want to take a break at this point and discuss individual and group goals for the Alpine Tower experience. The power and magic of all ropes course events is not in getting to the top, but in the growth that takes place while striving to obtain a goal. Emphasize craftsmanship, pride, and quality while attempting routes and events. Discuss various techniques for framing the experience and debriefing tips. The ultimate goal is creating

- standing on the base rail, as a group, without using hands. (Do not use as their first introduction to accessing the base rails.) This works best in small groups at separate stations. The object is to get them to use each other for help – to further instill this idea, have individuals hold hands. Be sure to spot carefully, and watch out for "hot dogs" who want to try it without group support. There is a potential danger if an individual disconnected from the group attempts to regain the rail on their own without using their hands.
4. *The Tai Chi Traverse* - increased difficulty. Use the same set-up and objective as before, but this time the tripod legs are "charged with one million volts of electricity." Participants must circumnavigate the base rails without touching the Tower legs. Instructors must spot the chasm between the spar angles carefully. Caution participants about jumping the chasm or straining body parts while attempting the span.
 5. *Penny in the Haystack* - a take-off on the proverbial "needle in the haystack." Have the group stand on the base rails and face away from the Tower center. Ask them to close their eyes until they are instructed to re-open them. Hide a penny in the very center of the base triangle, on the ground, preferably with only an edge visible. Ask them to open their eyes, turn around and find and retrieve the hidden penny, using only the plank and rope provided. Neither they nor the plank can touch the ground. The solution is to first find the penny, then span the base rails with the plank, grab the vertical Tower rope, swing over the penny, retrieve it, and finally retrieve the person. Caution against wild heroics (throwing the plank, diving for the rope, etc.) which could result in injury.
 6. *Trust Falls* - falls may be performed off the butt end of the highest base rail. One instructor steadies each participant before permission is given from the group to fall backwards. The faller's hands should be lightly tied together across their stomach with a bandanna to prevent an errant elbow from hitting the eye of a spotter, and the faller should be instructed to remain rigid as they fall. Spotters should be positioned in two rows, facing one another, shoulder to shoulder. Forearms should be extended, with palms up, to provide a "solid" mat of arms. Control this initiative carefully.

awareness in oneself and the support group by providing challenges that enhance self-esteem and identify transferable values and lessons. (Note: refer to Appendix A: Resources for Alpine Tower Programs for information regarding framing and debrief sessions.)

G. Explaining the Routes

1. orient staff to the North, Southeast and Southwest faces, as well as the South, East and West buttress routes (Note: see route diagram in Appendix G)
2. describe the events
3. encourage partners to discuss a route-event combination that encompasses challenge and adventure (not too difficult, not too easy, unknown outcome)
4. point out the potential for pendulum falls

H. Group Initiatives

The group initiatives listed below take place within the base of the Tower. They are all low-to-the-ground problems, occasionally requiring spotting and a few props. Important safety considerations are in bold type.

1. *The Jump* - after stretching out a bit, have participants practice stepping on and off the lower base rails. This will help later when they lose their balance during an initiative. **Instruct them to use their hand on the rail, as in vaulting over an object, if this helps to control their descent.**
2. *The Perimeter Traverse* - this is an easy one. Simply ask everyone to step up on the large, horizontal poles (base rails) and cluster around one of the lower tripod legs. Without touching the ground, or breaking the human chain, they must successfully circumnavigate the base spars. Spot only if you consider it necessary.
3. *The Rail Regain* - after doing some easier initiatives such as The Jump and The Perimeter Traverse, consider offering the challenge of

It may seem innocent, but groups have been known to occasionally drop the faller or be injured by the errant elbow. Before granting permission to fall, remind the faller to keep his/her feet firmly planted and body rigid as falling butt first could penetrate the mat of arms.

7. *The Titanic* - a bandanna is placed in the center of the base triangle. The group, standing on the rails, is given a 150' climbing rope, a harness and a carabiner to use as tools. They have five minutes to move one person over the "hot, boiling oil in the boiler room" to the bandanna in order to fix the leak before the ship sinks. They may not hook into the staple or the spider web. **They are not allowed to climb higher than the base rails. Instructors must spot well and ensure adequate knot tying.**
8. *The Amazon* - participants are instructed to huddle around a corner of the Tower while standing on the base rails or the event can be staged from the middle of a base rail. Props include the usual, stout plank and a six foot reaching stick. A pail is placed a distance out from one of the far tripod legs - far enough so that it is barely accessible when a participant, with the reach-stick extended, is outstretched on the exposed end of the plank. The group is instructed to retrieve the pail which contains "a much needed vaccination for the Yanomamo Tribe." Warn them that quicksand is everywhere. **Caution the participants about the plank end rising. One instructor should monitor the plank and another should spot the person retrieving the pail.**
9. *The Traffic Jam* - The solution to this problem is a bit tricky. With five or more people on a given team, you may have as many as three teams (one per base rail) working on the solution independently. The base rails are scored with a series of cross cuts. Divide each group in half to form two teams per rail. Each person occupies a square formed by the cross cuts, and teams face one another with an empty square between them. The object is to exchange sides without doing the following: a) passing one's own team member; b) moving backwards; c) passing more than one person per move; d) allowing two people to occupy a single space. The formula, in an alternating sequence, follows: one member from Team A moves forward, one

member from team B moves around Team A member, team B moves a second person forward, each team moves forward, and so on... Spot only if you think it is necessary. (Note: to insure successful facilitation, first try the activity yourself, using pennies to represent people, before explaining it to a group.)

10. *The Tower Pull* - this initiative is only used after a group has accomplished multiple ascents of the Tower and seems ready for a more difficult assignment. It requires eighteen people, working together, to solve the problem. Have all belay stations and participants (6 climbers, 6 belayers, 6 monitors) suited-up and ready to go. Using a 100' rope, lay it on the ground circling the Tower and tie the ends together. The objective is for all the climbers, with guidance and tension from belayers and monitors, to work the giant rope circle all the way to the top rails of the Tower.
11. *Spiders Alive* - this is a fun "get to know your group" type of ice-breaker. With everyone spread out along each of the three base rails, initiate a group juggling session using a single rubber spider. Emphasize quality tosses and ask participants to say the name of the person to whom they are tossing. Recipient says tosser's name and "thanks" in return. Slowly add more spiders to see if the group can eventually juggle up to five spiders (without people or spiders falling to the ground).
12. *Line-up Games* - many different line-up games can be performed while the group is standing on the base rails. The facilitator whispers an animal name (from mouse to giraffe) to each person and the entire group must line up according to animal height. Using birth dates also works well. Participants are not allowed to communicate verbally during the initiative.
13. *The Egg Drop* - in small groups, participants are given 50 plastic soda straws and a roll of masking tape. They are instructed to design and build a structure around a raw egg that will protect the egg from a drop off the top of the Tower. Partners pass the egg structure back and forth as they ascend the Tower.
14. *The Prison Shuffle* - two groups of participants, each holding hands, stand on separate base rails. The groups must trade base rails without passing on the inside of the legs or walking/stepping

asking participants to walk along the base rails a few times. Before moving to the wire, make sure everyone knows to simply step off the wire when they lose their balance. (Trying to keep one's feet on the wire may result in a head-first fall.) With a spotter on each side of the walker, ask them to practice stepping on & off several times. Initially, walkers may be assisted by spotters. As walker moves across the wire, spotters should gradually decrease the amount of support given. Remind the walker to relax, keep knees bent, focus on the end of the wire, concentrate, and breathe. Eventually, it will come to them - just like riding a bike. They will be very proud of their new skill. Advanced tricks include turns, walking backwards and walking with a partner. When the walker is proficient, spotters may be deemed unnecessary.

1. Partner Events on the Tower

It is suggested that "partnering" on the Tower be introduced only after individuals have accomplished multiple ascents of the Tower. It is possible, if time is limited and group goals dictate, to allow participants to ascend the Tower with a partner for their first attempt. Some people may be more nervous to do so, while others will find it reassuring. In specific instances (such as parent-child experiences) programs may wish to focus solely on partnering.

1. frame the experience: discuss teamwork, physically assisting one another, communication, etc.
2. instruct participants in the use of tethers: an eight foot piece of 1" tubular webbing, with sewn loops and locking carabiners on each end, which is clipped to the front of the harness
3. tether entanglement: if the tether becomes tangled, encourage partners to work through the problem; if severe tangling occurs, you may instruct participants to simply unclip and re-position the tether
4. present the partner events: Team Bean, Missing Link, Corporate Ladder, Floating Poles, The Beanstalk, The Diabolical Seesaw,

on the ground. This is best as a non-verbal initiative. Staff should spot the outside corner where they will more than likely decide to pass.

15. *The Sloth Regain* - here's a difficult individual challenge that will take some of the energy out of an overly-energetic individual or group. Have a participant hang upside down, sloth-style, underneath a base rail by wrapping his/her arms and legs around the pole. The object is to get on top of the pole without touching the ground. Beware of splinters - first make sure the poles are well-sanded. Long pants and shirts are best.
16. *Dating Sloths* - similar to the Sloth Regain, but performed with two people. There are several variations: both can hang upside down, or one may start from a sitting position on top of the horizontal base rail. The object is to gain the top while helping one another.
17. *Raising the Sphinx* - place a participant (the Sphinx) on the ground in the center of the Tower, sitting, with arms and legs crossed. The group, standing on the base rails, without touching the ground must move the Sphinx to one of the base rails. The solution: tie the ends of the climbing ropes to the circular Sphinx ring rope and maneuver the ring out to the Sphinx. The Sphinx gets one free 6" levitation move to sit on the ring. The group then pulls the ropes to raise and move the Sphinx out to the base rail. Another option is to tell the group that no knots can be used in the solution, which usually results in one of the climbing ropes being passed through the Sphinx ring enough times to provide all participants with a section of rope to pull on.
18. *Slack Wire Walking* - should not be considered a group initiative, as it focuses on the mastery of a skill by an individual. Like juggling, wire-walking is a powerful tool for developing self-confidence through accomplishing a task that may initially seem impossible. (Most participants can walk the wire alone after only three 20-minute practice sessions - the key is to ask the participant to commit to three lengthy sessions vs. simply three tries. This event is better-suited to groups who can revisit the Tower on sequential days.) Check the safety of the wire and bolts. Begin by

and the variations possible on each route: parallel climbing, switching leaders, etc.

5. encourage partners to physically assist each other: body to body contact is best, but tether-pulling is acceptable. (Modern free-climbing ethics need not apply to the partner events.)
6. lowering of partners: the process is exactly the same as in single lowers. The participants are instructed to sit at the edge of the platform with legs dangling. They should go through the 5-point check with a staff member before requesting to be lowered. After the "go ahead" is given by both the belayer and the instructor, both partners wiggle off the edge and become airborne. They are then told to hold on to one another tightly as they are lowered. (Note: do not allow participants to hold onto each other while they are wiggling off the platform. Doing so could result in an upside-down flip. Flips should be avoided as a climber in this position could conceivably fall out of his/her harness. Always remember to instruct the participant to snug the harness waist belt firmly around the stomach, above the hip bone.)

J. Debriefing the Experience

The true learning and retention of newly acquired personal/group insights can be discussed in the debrief session. Experienced facilitators will create an open, honest atmosphere for the discussion in which participants are encouraged to share observations of themselves and of the group. A quiet, comfortable, non-distracting site is best. Many instructors will relate the debrief to goals set during the presentation (framing) of the experience. Debriefing themes vary widely, including trust, cooperation, communication, gender roles, self-esteem, trying one's best and attempting the routes/events with quality and style. Try to guide the discussion away from initial group chatter and technical observations. (e.g. "Boy, the floating pole sure was wiggly.") Instead, guide the discussion toward the transference of lessons and values that apply to one's personal and/or professional life. Volumes have been written on this topic, see Appendix A for additional resources.

K. Rescue Procedures

Training and periodic refresher sessions will ensure that staff can effectively perform a rescue from any point on the Tower. Though simply lowering the climber with his/her own belay rope will work in most situations, the following techniques are simple and safe, and may be used for the majority of Tower evacuations. (Note: suspected spinal or neck injury may require other means of evacuation. In the case of an extremely unusual or unprecedented incident for which staff are unprepared, the local fire department or rescue squad may need to be contacted.)

The rescue procedure described below will work in the following situations if the instructor in charge considers it appropriate for the incident:

- participant has gotten into an unsafe pendulum position
- a complicated tangle has occurred during a partner climb and unclipping the tether will not remedy the situation
- a finger, hand or foot has become wedged in a pole junction
- an injury has occurred in which the climber's belay is ineffective and assistance is required

Procedure: staff set up the seventh belay rope (already in position on the Tower) and ascend to the victim. The staff member ties a figure-of-eight knot on a bight on his/her own rope within arm's reach, clips this knot to the victim's harness, and both participant and staff are lowered to the ground. In the case of a pendulum predicament, the staff member may need to position his/her rope around a pole, as a directional, before lowering off with the victim. A tether and carabiner around a pole or cable may serve as a better method of redirecting the rope for the lower.

Procedure: If it is necessary to raise the climber, (in the event of a foot, hand, clothing or helmet entrapment) a useful technique is the "vector pull." The belayer and belay bench must be immovable, or additional people may be used to weight the bench. Two or three

IV. ALPINE TOWER I AND II: SUPPLEMENTAL ACTIVITIES

There are a variety of additional events that may be offered with the Tower. Programs contemplating such events must consult with ATI to discuss specific considerations.

1. *Group Bivouac* - a group of 6 people may spend the night ("bivy") on the deck of the Tower. Each individual must be connected to a safety line by a harness and tether. Staff should have two separate lowering systems set up and ready to go in the case of lightning or other emergencies.
2. *Swing by Choice* - a giant king swing, designed and constructed by ATI as an optional event, may be erected between trees/poles and existing Tower. The swing provides an extremely exhilarating experience.
3. *The Zip Wire* - a zip wire exit can also be installed as an optional exit from the top. Zips do not provide as much air time as a swing, but may cost less to install.
4. *Night Climbs* - for groups who have demonstrated proficiency on the Tower during the day, night ascents can be offered - adding a new and exciting element to standard program curriculum. Individual headlamps and/or Coleman lanterns placed on the ground provide necessary light.
5. *Single Rope Technique* - SRT, the art of ascending and descending fixed ropes, is the primary method used by cavers to negotiate vertical caves. These techniques, described in the book On Rope (see Appendix A) may be incorporated as a Tower program activity. (Note: A belay must be used as a back-up.)
6. *Mountain Rescue Techniques* - a variety of technical rescue methods can be set up on the Tower. Pick-offs, rappel rescues, litter lowers

people pull on the taught belay rope in a perpendicular (toward the ground) manner. This should lift the climber a foot or two, relieving pressure, and allow the climber to dislodge him/herself from the entrapment.

For advanced training beyond these basic Alpine Tower rescue procedures, contact ATI to arrange additional workshops on intermediate level training. (See outline in Appendix I)

and lead climber rescue techniques are ideal for use in staff training workshops.

7. *Juggling on the Base Rails* - juggling, like slack wire walking, is an excellent event for developing self-esteem. Juggling on the base rails is a great way to enhance balance and coordination skills.
8. *Participants Teaching Participants* - for certain programs (such as multi-week or multi-month programs) allowing the participants to teach others promotes the transfer of responsibility. Consider the impact of allowing young teenagers to teach Tower rescue techniques to local police or fire departments!
9. *Family Days or Public Demonstrations* - best suited for long term residential-type programs. Having young participants demonstrate the art of climbing to families, friends or the general public is a positive technique for instilling "importance and pride" in younger groups.
10. *Register* - some programs offer a sign-in register on the top platform or the Diamond Platform similar to those found on mountain summits. Documenting one's accomplishments is a means of acknowledging and celebrating success.

V. ALPINE TOWER II: UNIVERSAL CHALLENGE ACTIVITIES

While the manual covers all general safety policies, philosophies, goals, staff training outlines and procedures for low and high events on the Tower, this section specifically addresses the universal challenge events designed for programming with people with disabilities.

The original Alpine Tower I design has been adapted for universal programming with diverse groups, including people with disabilities. The Alpine Tower II offers a variety of challenges and group problem-solving events suitable for any group, but the real magic of the concept comes alive when people with and without disabilities come together, as a team, to tackle the challenges of the Tower experience – a deeper understanding of individual needs and cultural differences often results.

The Alpine Tower II concept was created by Mike Fischesser, President of Alpine Towers, Inc. with Chris Roland and Don Rogers of Roland/Diamond Associates. Chris and Don are pioneers in the field of accessible adventure challenges.

1. *The Piano*

- **Purpose:** The Piano was added to the base leg of the Tower to provide an alternate, accessible route on the Tower. It can be used by any population deemed appropriate by staff.
- **Safety Policy:** Participants and staff must be on belay while on the deck.

2. *Team Beam Deck*

- **Purpose:** The deck may serve as a destination/goal, resting spot, or transfer point. The Entrance Tube, Piano, and Knotted Rope converge at this deck.
- **Safety Policy:** Participants and staff must be on belay while on the deck.

• **Safety Policies:**

- **Staff must be thoroughly familiar with the set-up before attempting with participants.**
- **A separate belay must always be employed.**
- **Never allow staff to experiment with mechanical advantage haul systems on a participant**

5. *Counterbalance Hoist*

- **Purpose:** This event is similar to the Team Hoist, but with the added goal of sharing the experience with a partner.
- **Set Up:** Climber on ground attaches to one end of counterbalance rope. Climber on upper tower deck ties in to other end of rope, close to the pulley positioned on rail. Belay rope may be needed to assist the lower climber who is moving up.
- **Instructor Considerations:**
 - Use the belay ropes to assist with the pull, or to slow the descent of a heavier participant.
 - Place the sling and pulley high enough for the participant to reach the destination without much climbing.
 - Caution participants to keep fingers, hair and clothing away from pulley
- **Safety Policies:**
 - **Each person must have a separate belay.**
 - **Staff must be familiar with the set-up before performing with participants**

6. *Accessible Spider Web*

- **Purpose:** To provide an accessible team initiative event.
- **Instructor Considerations:**
 - One of the openings should be large enough to accommodate a wheel chair.
 - Roll the net carefully around the spreader piece to prevent future problems.

3. Entrance Tube

- Purpose: To provide an alternate access to the mid-level area of the Tower.
- Instructor Considerations:
 - The previous participant will need to be lowered off the Tower through the tube to allow the next person to be belayed up the tube.
 - Have the last person off the Tower secure the Tube and Knotted Rope to the Team Beam deck.

4. Team Hoist

- Purpose: The Team Hoist was designed to allow people with disabilities to access various points on the Tower. It may be rigged over the Team Beam deck or at other points on the Tower. Emphasis should be placed upon overcoming personal fears, and support for fellow teammates. (Position an appropriate participant in the Tower to provide support for climbers as they pass through.)
- Set Up: An extra rope, attached to the climber's harness, runs through one high pulley and through a second pulley (as a directional) on the base rail.
- Instructor Considerations:
 - Some people with disabilities may only be able to communicate with eye movements. In this case, staff and/or fellow participants may need to position themselves at various levels in the Tower to monitor pre-planned eye signals designated for "up, down or stop" commands.
 - Appoint one person to serve as communicator for the pulling team (the mules).
 - No more than seven participants are needed to pull.
 - Proceed slowly and do not over pull when participant nears the top.
 - A "Z-drag" haul system can be used at ground level by the mule team.

• Safety Policies:

- Emphasize spotting when individuals are passed through the web.
- Do not allow dynamic movements such as diving or high jumping.

7. Swing By Choice

- Purpose: To provide an exciting, fun element that requires a commitment by the participant. The Swing by Choice allows participants to choose the height from which they are most comfortable to swing.
- Procedure for Baby Rope Release Method:

The group uses either the cargo net or the step ladder to lift the participant up to the swing. ATI recommends using at least 10 people to execute the lift. The participant has on a sit harness (and possibly chest harness), helmet and goggles; participant clips to strand vice bail with locking carabiner; the Swing rescue procedure (see Illustration 6) may be used in reverse to assist with the net lift for people with disabilities.

A Tower tether is quadrupled through an additional harness carabiner and up to the cable back-up loop. (To save time, a prusik or webbing loop can be girth hitched through the back-up loop for the entire session, thus eliminating the need to deal with the tether each time.)

On one of the Tower belay ropes, a figure-of-eight knot on a bight is tied about 30' from one end. This bight has a carabiner attached to it. It is then attached to a third carabiner in the harness, with a short piece of rope wrapped through both carabiners using 3 round turns. This short piece of rope is called the "baby rope." It should be 18" long and a different color than the belay rope. One person is designated as the rope handler, and he/she provides slight tension on the long, loose tail as follows: a) it prevents the participant from being pulled too high, causing a free fall drop at the beginning of the arc, and b)

the slight tension insures that the tail of the rope is not entangled with either the cable or the participant.

The participant places the loose end of the rope on the outside of their thigh to prevent an entanglement after the release.

No more than 7 team members tug the pull-rope after it runs through a pulley on the Tower base rail. The participant releases when ready. A warning to the pull team, from the swinger, prevents the team from falling down.

- Procedure for Halyard Snap Release Method: There are two ways to use the Halyard Snap:
 - participant may pull the baby pull cord
 - a system may be set up enabling a person on the ground to pull the cord. (See Illustration 7)
- Instructor Considerations for the Swing by Choice:
 - Check the 3 guy cables on the double poles before each day of use.
 - Do not allow team to pressure a participant into being pulled higher. There will be later opportunities for participants to go higher.
 - If the swing haul rope does not go through a pulley at both the belay rail and base rail, it will become glazed and thus unusable. To prevent this, designate a swing haul rope, use a directional pulley at the base rail (no upper pulley) and allow the haul rope to become glazed.
- Safety Policies for the Swing by Choice:
 - Participants must be screened for pre-existing medical conditions or physical problems (bad back, weak heart, etc.).
 - 250 lbs. is the maximum participant weight allowed for swinging.

VI. ALPINE TOWER II: UNIVERSAL CHALLENGE STAFF TRAINING

Universal Challenge Education Training
by Don Rogers

Day 1

A. Goals

1. enable staff to facilitate challenge activities with various populations with disabilities
2. suggest techniques and strategies for program development and implementation
3. address the needs and concerns of trainees as they progress through the training
4. define the goals of agency and group
5. present the history and philosophy of Universal Challenge Education
 - independence (psychological, emotional, physical)
 - challenge by choice
 - dignity of risk
 - universal applications
 - new paradigms related to inclusion
 - safety first

(Activity: Group Juggle)

B. Workshop Framework

1. participation by choice
2. active participation and listening
3. two workshops: one in front of you, the other in your mind
4. value each other's comments
5. have fun!

(Activity: Five Ball Touch)

- Participants must wear a harness, helmet and goggles on swing.
- Always pre-test swing system before use by asking two people to briefly hang by their hands on the swing cable.
- Participants must clip to the swing with one carabiner, and to the tether with a second carabiner.
- Participant positions pull rope tail on outside of their leg.
- No more than 7 people are used to pull the participant up.
- Do not pull people up so high that they will experience an initial free fall.
- Never use a rope with sheath glazing as a tower belay rope ("glazing" refers to melting which occurs when nylon material reaches a temp. of 480°).

C. People with Disabilities

1. attitudes and terminology
 2. integration, inclusion and universal (systems approach)
 3. types of disabilities (e.g. SCI, Developmental, Blind) and their implications for participation – includes safety, physical and cognitive functioning, family issues and communication
- (Activity: Tube Pass)

D. Program Content (See page 48)

(Activity after lunch: Touch Blue)

E. Program Design

1. Skills Required
 - individual and group assessment
 - activity analysis
 - activity adaptation
 - understanding of sequencing
2. The Process
 - Assessment*
 - when (before and during)
 - how (standardized/non-standardized)
 - what (need a presenting issue)
 - confidentiality (documentation, publicity, verbal)
 - Plan*
 - analyze assessment information (needs, functioning levels, group composition)
 - determine appropriate goals
 - sequential framework
 - match goals with activities, environment and time
 - practice if needed
 - communication with clients

- "Am I making the best use of my resources?"

Implement

- come prepared, in plenty of time
- perform site preparation
- welcome; front-load the day; fears, concerns, goals; debrief session
- tune into feedback and adjust as needed
- closure

Evaluate

- formal and informal
- formative and summative
- document and act

F. Universal Initiatives and Minimal Prop Activities (Let's play!)

- Moonball • Human Camera • Human Knot • Ship in the Harbor • All Aboard • Blind Polygon • People-to-People • Traffic Jam

Assignment for tomorrow: Lead any activity learned either today or in previous training (designate group members who will simulate disabilities).

Day 2

A. Universal Facilitation Skills

1. Competencies

- knowledge of challenge education methods and process
- knowledge of disabling conditions and implications for participation in adventure activities
- inclusive activity design and implementation
- safety in all domains
- technical skills

right time can be benevolent, helpful and developmental. But, if they are acted upon exclusively or excessively, without allowing for each client's individuality and growth potential, they will overprotect and emotionally smother the intended beneficiary. In fact, such overprotection endangers the client's human dignity and tends to keep him [sic] from experiencing the risk-taking or ordinary life which is necessary for human growth and development."

Robert Perske

D. Techniques for Inclusion

1. Respect each person's dignity.
2. Open lines of communication within the group.
3. Establish patterns for inclusive decision making.
4. Emphasize the value of effort and non-physical accomplishment.
5. Focus on group challenges and activities.
6. Develop symbiotic relationships.
7. Delineate and delegate tasks.
8. Have fun and laugh!

E. Program Content

Challenge education programming is designed to provide purposeful intervention that meets the needs of a given group of people. In order to determine program content that will be a catalyst for change, activities must be compatible with group readiness, group goal and program parameters. Be aware of the following central issues:

1. Activity sequence needs to be sensitive to the progress of the group (physical, emotional, and intellectual readiness).
 - Participants need to learn, through experience, the necessary skills for an activity. This may include spotting, balancing, asking/giving support, coping with frustration, conflict resolution, etc.
 - Even though a course or program is laid out in a particular sequence, it does not mean that every group will follow

2. Skills

- use of initiatives
- model inclusion
- use of appropriate terminology
- knowledge of all in group (group centered)
- goal setting and attainment
- emphasize role integration that complements abilities within group

3. Overview

- hard skills
- soft skills
- meta skills

B. Review of Valuation

1. purpose
2. sequence: debrief, process, transfer (concrete to abstract, or "what," "so what," "now what")
3. what to talk about
4. how to do it

Practice time! Move outside to do activities with people in the group simulating disabilities.

After lunch, work on and around the Tower and get acquainted with all of its accessible features and activities, including the Spider's Web and the Birth Canal. If weather permits, stay with the Tower and debrief the training, address any unanswered questions/concerns, and fill out evaluations.

C. Attitudinal Barriers

"Many who work with the handicapped, impaired, disadvantaged, and aged tend to be overzealous in their attempts to 'protect,' 'comfort,' 'keep safe,' 'take care of,' and 'watch,' Acting on these impulses at the

that sequence or use every element. Each group develops uniquely.

- If a group is struggling to the point of break-down, where cohesion is severely threatened and safety becomes an issue, these are signs that the challenge level may be too high for the group. Assuming you are on track with meeting the group's goals, engage the group in identifying the needed skills and re-program accordingly.
2. Activities should be success oriented unless there is a reason to expose them to failure (and sometimes there is).
 - Do not set-up a group for meaningless failure. Take into consideration issues like age, size, strength, and physical functioning. For example, a group whose diversity includes people with cognitive impairments would find it next to impossible to include everyone in an activity that requires high level cognitive processes (such as the Traffic Jam).
 - All group members should be able to have a meaningful role in the activity. This may require modifying traditional activities or creating new ones that allow everyone active involvement without minimizing the challenge.

3. All activities should include a Valuation Session

A Valuation Session can occur at any time, though it usually follows an activity. It is during this time that participants are given the opportunity to reflect upon what they have experienced during the activity, to derive meaning and to communicate what they have learned.

Participants will begin the session by debriefing what has just happened. Debriefing deals with the concrete elements of the experience such as who did what, when and how. During the debrief, it is inevitable that issues will also be identified. The facilitator brings these to the group's attention for processing.

Processing is more abstract in that it asks participants to explore how they felt/feel about their experience, what they were/are thinking, and what they are discovering about themselves and the group.

Next, and most importantly, the lessons learned need to be transferred. To transfer learning, in the context of a Valuation Session, is to visualize, discuss and develop strategies for the successful application of knowledge and/or skills learned in one environment to another, such as in the next activity, or at home, school or work.

The following are possible areas of reflection and discussion for the Tube Pass Activity:

- learning by example
- initially perceiving an activity as impossible
- willingness to step-in and assist other group members

Facilitators should pre-plan Valuation Sessions and be prepared with specific questions that relate activities to group goals. As well, facilitators need to remain aware of the appropriateness of activities, questions, comments and metaphors in relation to issues surrounding culture, race, religion, gender, age, body composition, disability, sexual orientation, education, emotional state, family origin, and, where applicable, treatment.

F. Assessment

1. Discuss abilities related to the following:
 - mobility and physical functioning and indications/contraindications
 - communication
 - cognitive functioning
 - emotional/behavioral functioning
 - social skills

H. Overview

1. *Hard skills:* These skills are relatively easy to develop through training and are easily assessed by systematic evaluation.
 - technical activity: competence in performing a specific activity such as rock climbing, knot tying, belaying
 - physical, mental and emotional fitness: being physically fit enough to keep pace with the group while being mentally and emotionally well enough to handle stress requirements of the activities
 - first aid and CPR: staff should have the ability to perform first aid and cardiopulmonary resuscitation, and have certification in these areas
 - overall safety: anticipate dangers and be on the lookout for potential accidents, while being prepared to respond quickly and appropriately:
 - visual and physical inspection of the Tower
 - weather
 - environmental safety
 - inspection of equipment
 - well developed and practiced plan for emergencies
 - environmental protection: skills to avoid irreversible damage to the environment:
 - consistent use of trails
 - no bush-whacking
 - care of trees
 - minimum impact
 - sanitation
2. *Soft Skills:* These skills tend to take more time and experience to develop and assess than hard skills. Generally, soft skills are related to working with people, activity organization and facilitation.

2. Address the following considerations:
 - adaptive equipment used
 - medications – implications for activity and environment
 - toileting needs and ADL
 - diet
 - current living and care status
 - current level of activity

G. Facilitator Skills

1. *Empathy*: Tune into what the participant is feeling and give them feedback that communicates your understanding of their position and feelings.
2. *Respect*: Communicate to the participant your sincere belief that who they are and what they have to contribute is valuable. This is the opposite of paternalism and patronage.
3. *Be Concrete*: Deal in specifics such as who, what, where, etc. Use examples and uncomplicated metaphors.
4. *Self-disclosure*: Share your own feelings, attitudes and experiences relevant to the situation.
5. *Confrontation*: Use probing questions or statements that call attention to a participant's discrepancy of behavior and/or messages.
6. *Be Genuine*: Free expression of oneself. Allow words to match inner feelings.
7. *Immediacy*: Focus the process on the here and now as it pertains to individuals, the experience, the environment and the group.

- Organizational: logistics of the program, such as scheduling, sequencing of activities and time management
 - Instructional: ability to teach experientially
 - Facilitation:
 - ability to debrief, process and transfer
 - foster an atmosphere of interpersonal cooperation, trust and teamwork
 - competent at enabling the development of interpersonal confidence and independence
 - crisis intervention and conflict resolution
 - Working with People:
 - maintaining strict participant confidentiality
 - respect rights, standards, styles and values of others
 - accept individual uniqueness
 - Personal Qualities:
 - punctual, mature, humorous, fun-loving, unselfish, polite, pleasant, friendly, approachable, compassionate and confident
 - demonstrate innovative thinking, personal initiative and model behavior, especially in the areas of safety and environmental concern
3. *Meta Skills*: skills which connect and integrate the hard and soft skills
 - Interpersonal Communication:
 - clearly communicate with participants and other staff
 - give and receive feedback through techniques such as paraphrasing, impression checking and behavior description
 - Problem Solving and Decision Making:
 - solve problems and make decisions under stress
 - anticipate consequences before making decisions

- Flexible Leadership Style:
 - ability to understand and identify different leadership styles
 - capable of adapting leadership style depending on the situation
- Judgment:
 - sensible about safety and environmental issues (forethought vs. reactive)
 - ability to apply inductive, deductive and evaluative reasoning when reflecting on and learning from experiences

I. Valuation: Debrief, Process and Transfer

One of the most important components of any adventure-based developmental or therapeutic program is the process known as "Valuation" or "Reflection." This process is intended to focus on sharing the learning resulting from participants' behaviors, reactions and feelings – with the goal being the transfer of lessons to a target environment. There are numerous verbal and non-verbal techniques that can be utilized during and/or after adventure activities. Participants are encouraged to reflect, describe, analyze and communicate in various ways what they have been and are presently experiencing.

Valuation is an internal, self-directed form of reinforcement. The effectiveness of this process is dependent upon the sensitivity and knowledge of the facilitator in the areas of group development, *cognitive processes*, interpersonal relationships, activity programming and experiential learning. Also required is specific expertise related to the populations being served.

Bloom's Taxonomy of Cognitive Processes:

1. *Knowledge* – memory level: remembering, recall

VII. ALPINE TOWER I AND II: COMPREHENSIVE SAFETY POLICY SUMMARY

The safety policies listed below are meant to serve as a checklist for staff and students after all other information has been presented. It is always a good idea to review this list prior to the actual activity.

1. Programs desiring to modify policy should consult with ATI.
2. All staff should be thoroughly trained in the use of the Alpine Tower.
3. Staff should conduct a cursory inspection of the Tower prior to each use.
4. Using the ATI inspection sheet, program managers should closely inspect the Tower each month.
5. Tower should not be used during high winds, incoming thunder, lightning, or other environmental hazards. (High winds of 30 to 40 m.p.h. can cause hanging events such as the Corporate Ladder to start swinging into the Tower.)
6. Climbers as well as participants beneath the Tower will wear ATI approved helmets.
7. Staff and students must not climb the Tower without a belay.
8. Students must demonstrate proficiency in belaying before being permitted to belay a participant on the Tower.
9. Belayers will use a figure eight descender, threaded rappel style, as the mechanical belay device, or may use a GriGri if staff are trained in its use. Any other belay method or device must be pre-approved in writing by ATI.

2. *Comprehension* – understanding level: interpreting information, knowledge in a literal/descriptive way
3. *Application* – simple usage level: correct use of knowledge
4. *Analysis* – relationship level: breaking knowledge down into component parts, detecting relationships
5. *Synthesis* – creative level: putting together pieces to create a whole
6. *Evaluation* – opinion level: making judgments about the value of ideas and solutions

J. Techniques

- | | |
|--------------------|-----------------------------|
| 1. journal writing | 11. blind sculpting |
| 2. solos | 12. movement or dance |
| 3. duos | 13. music, sounds, voices |
| 4. pantomime | 14. movies |
| 5. art | 15. muting/blinding members |
| 6. adjective cards | 16. guiding imagery |
| 7. group go-round | 17. stories |
| 8. poems | 18. shared leadership |
| 9. feeling faces | |
| 10. body sculpting | |

10. Minimum acceptable age for belayer and belayer monitor is 14 unless program has rationale and appropriate safety backup system and has been approved in writing by ATI.
11. All belayers will have a belay monitor who will keep both hands on the rope.
12. All belay ropes must be static (non-dynamic) ropes approved by ATI.
13. Belay ropes must be positioned over the top of the belay rail from the outside.
14. Staff should insure that the belayer's and climber's systems are secure and ready prior to each ascent and lower. One method of doing this is to conduct a five point check before each climb and lower. This would include the following sequence:
 - belayer ready, rope taut
 - belayer's anchor carabiner and belay device carabiner locked
 - harness buckled and fitted properly
 - climbing rope is not riding over another climbing rope
 - climber's knot correct
15. Chest harnesses, in conjunction with sit harness, should be worn by individuals whose stomach and chest shape does not allow the waist belt of the sit harness to snug down properly above the hip bones.
16. Participants should be informed of the dangers of sharp objects in pockets, jewelry from wrists, neck and fingers and bandannas, and encouraged to remove these items if possible.
17. Participants should be informed of the dangers of objects in the mouth (gum, candy, etc.) when climbing and encouraged not to have anything in the mouth.

18. Always provide a thorough safety briefing prior to each new event, informing participants of any safety considerations/policies and the potential consequences if not followed.
19. Properly position the climbing rope prior to the ascent.
20. Do not allow participants to get into an unsafe pendulum situation.
21. Do not allow participants to place fingers inside eyebolt holes.
22. Do not allow participants to purposefully rock the Tower while on top.
23. Do not allow dynamic drops during lowers – always lower slowly.
24. Do not allow partners to hold one another as they dismount from the deck (their combined body weight above their harnesses may cause them to invert).
25. Do not ride or zip down the guy cables.
26. Inform participants that they are not qualified to set up climbing systems on their own at home (unless that is a program goal and adequate teaching has taken place).
27. A first aid kit and staff trained to use it will be on hand during Tower activities.
28. Medical screening to ascertain current level of physical activity, medications, heart problems, pre-existing injuries, etc., and an acknowledgment of risk form should be completed and approved prior to participant involvement.

41. Participants must clip to the swing with one carabiner and to the tether with a second carabiner.
 42. Participant positions pull rope tail on outside of their leg.
 43. No more than 7 people are used to pull the participant up unless more are required due to their strength and/or size.
 44. Do not pull up so high that they will experience an initial free fall.
 45. Never use a rope with sheath glazing as a Tower belay rope ("glazing" refers to melting which occurs when nylon material reaches a temp. of 480°F).
- Rappelling or Bivouacs*
46. No more than six participants on upper deck of Tower, including staff, at any one time.
 47. All staff and participant rappels will be belayed with a separate belay rope.
 48. Participants must be tied in to the belay rails, belay rope, or to the swing cables when on the upper deck.
 49. Overnight bivouacs should have two lowering systems ready to go in the event of an incoming storms.
- Staff to Participant Ratios*
50. A staff to student ratio of 1:6 should not be exceeded unless the participants are properly experienced.

Activity Specific Policies

Team Beam Deck

29. Participants and staff must be on belay while on the deck

Team Hoist

30. Staff must be thoroughly familiar with the set-up before attempting with participants.
31. A separate belay must always be employed.
32. Never allow staff to experiment with mechanical advantage haul systems on a participant.

Counterbalance Hoist

33. Each person must have a separate belay.
34. Staff must be familiar with the set-up before performing with participants.

Accessible Spider Web

35. Emphasize spotting when individuals are passed through the web.
36. Do not allow dynamic movements such as diving or high jumping.

Swing by Choice

37. Participants must be screened for pre-existing medical conditions or physical problems (bad back, weak heart, etc.).
38. The maximum participant weight allowed for swinging is 250 lbs.
39. Participants must wear a harness, helmet, and goggles on swing.
40. Always pre-test swing system before using by asking two people to briefly hang by their hands on the swing cable.

VIII. TOWER MAINTENANCE

The Tower is designed to be low-maintenance. The major, annual task is the application of Total Wood Preservative (TWP) on all wood surfaces. Other periodic tasks include sanding of rough spots, tightening of nuts and bolts and handholds, applying grease on the "access prevention devices" and replacement of lash/net ropes.

Total Wood Preservative

TWP can be obtained at a reduced price from The Glidden Company in Morganton, NC, 704 438-9210. Approximately one half to one full day is needed to apply the 5 gallons to all wood surfaces (boards and poles). Drier Towers may require 10 gallons. TWP should be applied on a windless day using a small, inexpensive pump garden-sprayer. Wear safety glasses and a mask or respirator.

Try to keep the TWP off of the nylon harnesses and climbing ropes. The rope manufacturer tells us TWP will not harm the nylon, but to be on the safe side, we recommend using *two* retired ropes for belay. (The belayer can lower the person applying the TWP from the top.) Mark these ropes well to make sure they are not used for Tower programs. Although it should be avoided, it is not a problem if TWP accidentally gets into handholds, bolts, cables, lash ropes or nets.

Nuts and Bolts

Due to pole contraction and expansion and climate variations, the nuts on the 3/4" bolts will eventually need to be tightened. A large, adjustable wrench will do the trick. Simply make sure bolts are tight against the wood, but avoid over-tightening and stripping the bolts.

Strand Vice

Examine the bend in the bail of the strand vice for possible hairline fractures which may be caused by a phenomenon known as "point loading." The bail should also be examined for deformation or elongation indicating high forces in that area. Occasionally, a strand vice may release the cable. ATI builders back-up all critical strand

vice situations with a stop swage on the cable end to prevent a total release. You can monitor suspected slippage with a small piece of tape on the cable in front of the strand vice cone. Please notify ATI in any of these situations: (828) 733-0953.

Guy Cables

Guy cables should be taut – neither banjo string tight nor floppy loose. Approximately 6" to 18" of play at face level is acceptable. If you feel that any guy cables need to be tightened, please contact ATI for consultation.

Handhold Tightening

All handholds have a 3/8" diameter lag screw connecting the hold directly to the pole or lag shield insert. Be aware that over-tightening can strip the hole or break the hold. If the hold is still loose after attempting to tighten, simply obtain a longer lag screw and try again. If this does not work, move the hold one inch away from the old hole and allow the lag to purchase into new wood.

Grease

Keep the Access Prevention Devices well greased. Spread it thickly, with the grease tube or a spatula, but not so much that it "glops" off onto the pole below.

Air Terminals

Be sure to check the tightness and security of the air terminals (lightning rods) during your monthly inspections.

Ground Cover

Insure that bare dirt or sand in the program area is well covered by hearty grass, wood chips, pine straw, bark mulch or pea gravel. The fine grit from dirt and sand can cause excessive wear and tear on the nylon climbing ropes. Call ATI for advice.

X. ATI NEWSLETTER

Issues of the Alpine Tower Newsletter are mailed during the year to Alpine Tower owners. Originals should be placed in the ATI Newsletter Notebook, and copies of each issue should be dispersed to all program staff members.

The Newsletter is an extremely important document for legal, safety and training purposes. ATI will inform owners of updated safety policies and ATI Instructor's Manual revisions through the Newsletter. A current Newsletter Index is provided with each issue for quick reference of past articles and topics.

IX. ALPINE TOWER SYMPOSIUMS

Alpine Tower Symposia occur every 18 to 24 months, usually in North Carolina to enable Alpine Towers, Inc. builders, trainers and reviewers to attend. Typically, symposia are four days in length.

Program managers and their staff are urged to attend. This educational conference provides excellent opportunities for outdoor educators, trainers and counselors to network with peers. Workshops, trainings and policy updates/ reviews are conducted throughout the Symposium.

Since its inception, Alpine Tower Symposium evaluations have been highly favorable. Participants are consistently pleased with the volume and significance of new program information available.

XI. EQUIPMENT PROVIDED BY ATI

Staff and programs with Alpine Tower designs may order equipment at a discounted price through the Alpine Towers, Inc. office. Call for prices and catalogs (when available) for supply companies (828) 733-0953).

Alpine Towers, Inc. has dealerships with PMI/Petzl, Junkin, Yates, Metolius, EntrePrises, Rescue Systems, Inc., Nicros, Franklin, and many ropes course construction suppliers.

The main items typically re-ordered by programs are listed below:

- Petzl Ecrin Roc Helmets
- Yates Alpine Instructional sit/chest harnesses
- SMC/RA figure-eight descenders (without ears)
- PMI E-Z Bend static ropes (11 mm x 150')
- PMI 8 mm prusik hitch rope
- Junkin SAF-200 litter with CMC face shield
- SMC locking carabiners
- ATI tethers
- ATI Instructor's Manuals
- ATI No Trespass signs
- ATI T-shirts, knit shirts, hats

XII. A SAFE METHOD FOR SOLO ASCENTS OF THE ALPINE TOWER

Occasionally a program staff member will need to ascend the Tower alone for the purpose of inspection or maintenance. First and foremost, be careful and be conscious of the fact that there will be no one to respond in the event of an accident. Prior to ascending the Tower, inform a co-worker of your whereabouts.

The safest method for protecting yourself as you climb is to use two prusiks tied to a fixed line. First, tie a Tower climbing rope directly to the base rail of the Tower (do not use the belay bench as it may move). The rope should be in the usual belay configuration – up and over the belay rail.

Tie a regular prusik hitch with one of the 8mm prusik loops and a triple- wrapped prusik hitch with the other loop. Connect each to your harness with a separate locking carabiner. Have a third prusik loop as a backup in case you fall into free space and need one for your foot for ascending.

Tie into the rope with a figure-of-eight on a bight and connect it to your harness with a third carabiner. This will prevent you from hitting the ground should your prusiks accidentally not grab (from being too loose) or should your prusiks detach from your harness.

Always use 7mm or 8mm diameter prusik loop material. Most 8mm is too stiff to grab the rope properly, so you should use 7mm or 8mm cord made specifically for prusik hitches. Each loop is made from a 6-foot piece of cord using a double fisherman's knot or retrace figure-of-eight knot to connect the ends. If you wish, you may contact ATI for the proper prusik material.

Making Groups Work - by Napier. A useful book on working with groups and their various stages. Available through the North Carolina Outward Bound School. (704-299-3366)

Islands of Healing - by Schoel, Prouty and Radcliffe. A guide to adventure-based counseling. Available through Project Adventure. (508-799-6544)

It's All in Your Head - by Baldwin. Lifestyle management strategies for busy people. Available through Direction Dynamics. (919-799-6544)

Book of Readings - A collection of favorite readings from the North Carolina Outward Bound School. (704-299-3366.)

Wilderness Medical Associates Medical Screening Package - compilation of guidelines, policies and forms to simplify screening of participants in outdoor programs. For more information, call WMA. (207-354-6401)

Medical Screening Procedures for Organizations by David Johnson. Available on cassette tape (#199) available through Goodkind of Sound. (800-476-4785)

Services

Kurt Hahn Leadership Center - offers a wide variety of workshops for all types of group leaders, office located at NCOBS in Asheville, NC. (704-299-3366)

Wilderness Medical Associates - provides first aid training for outdoor instructors, located in Maine, with courses offered throughout the United States. (207-354-6401)

APPENDIX A - Resources For Alpine Tower Programs

Reading

The Safety Review Manual - by Fischesser and Wade. A guide for conducting program safety reviews. Available through Outward Bound USA. (914-424-4000)

Safety Practices in Adventure Programming - by Priest and Dixon. A collection of standards, policies and procedures from outdoor programs. Available through the Association for Experiential Education. (303-440-8844)

Ropes Course Safety Manual - by Webster. An instructor's guide to initiatives, low and high elements. Available through Project Adventure. (508-468-7981)

Promoting the Values of Service and Compassion Through Rescue Training in Adventure-Based Education - by Fischesser. Available through Outward Bound USA. (914-424-4000)

1988, 1990, 1991, 1993 Ropes Course Symposium Proceedings - compiled by Fischesser. The proceedings contain useful information on all aspects of ropes course work. 1991 contains valuable information on medical screening. Available through Outward Bound USA. (914-424-4000)

Cowtails and Cobras II - by Rohnke. A guide to games, initiatives, ropes courses and adventure curriculum. Available through Project Adventure. (508-468-7981)

On Rope - by Smith and Padgett. An excellent resource for rope work. Available through the National Speleological Society. (205-852-1300)

The Conscious Use of Metaphor - by Bacon. A useful resource for learning about metaphor use and counseling. Available through OBUSA. (914-4424-4000)

Association for Challenge Course Technology - membership open to anyone, but primarily aimed at ropes course construction and safety developments through symposiums and newsletters. For membership information, contact ACCT: P.O. Box 970, Purcellville, VA 22132. (703-668-6699)

Safety Reviews - entire program or single program activities evaluated in terms of safety management. Contact Mike Fischesser at Alpine Towers, Inc. (704-733-0953)

Insurance Information - Hibbs-Hallmark and Co., P.O. Box 8357, Tyler, TX 75711, PH 1 800 765-6767, FX 1 903 581-5988.

Association for Experiential Education - membership provides newsletters, conferences and a jobs clearing house for the field of experiential education. (303-440-8844)

APPENDIX B - Alpine Tower Benefits

When your organization develops an Alpine Tower challenge course program you tap into a wealth of resources and services aimed at keeping your program operating at the highest levels of safety, quality and state-of-the-art technology.

Here are some of the many benefits associated with becoming a Tower owner:

- *Alpine Tower Symposium* - an annual gathering of staff from programs with Towers
- *Alpine Tower Newsletter* - a periodic bulletin keeping programs abreast of news and developments
- *Safety Reviews* - all programs receive a safety review one year after installation and training, every 3 years thereafter (not included in original tower price), with structural inspections occurring during the in-between years: the review team consists of well-trained outdoor educators with years of safety review experience
- *Equipment Discounts* - organizations may order ropes, carabiners, helmets, harnesses, etc. at a discounted price through ATI
- *State-of-the-Art News, Development, and Technology* - we recognize that it is often difficult for individual Tower owners to stay abreast of current safety standards, so ATI provides this service for its programs; ATI networks and communicates extensively with a broad variety of programs and organizations throughout the United States; relevant information, coupled with up-to-date news from the Association for Challenge Course Technology, is passed on to Tower owners via ATI Newsletters, Symposiums and Reviews
- *Regional Networking* - upon request, ATI will link together local Tower organizations so they can share resources, staff, pricing, trainings, etc.
- *Alpine Tower Instructor's Manual* - this simple, easy to follow manual outlines all Tower activities and safety policies

APPENDIX C - Alpine Tower Inspection Sheet

Purpose

A permanent staff member with long term program continuity, knowledgeable about ropes courses, should be designated as the person responsible for monthly Tower inspections, when the Tower is to be used. Seasonal staff should be trained in the inspection process to provide a cursory inspection prior to each use. These monthly inspection sheets should be kept on file in the program office. Any problems should be reported to Alpine Towers Inc.: P. O. Box 69, Jonas Ridge, NC 28641 / 704-733-0953. A formal and more comprehensive safety review which includes inspecting the Tower, program incidents, records, policies, and staff teaching ability should be scheduled for one year after construction. This review should be conducted by ATI. (See page 10 of Instructor's Manual for review schedule.)

Initials/Date /Action to be taken

Item

- | | |
|-------|---|
| _____ | 1. <i>Climbing Ropes</i> - keep use records; consider retiring after one year of normal use |
| _____ | 2. <i>Carabiners</i> - check lock mechanism; spray with WD-40 (and wipe off) if stiff |
| _____ | 3. <i>Harnesses</i> - examine stitching; report any unusual abrasion; should be OK for 4-5 years |
| _____ | 4. <i>Figure Eight Descenders</i> - examine for wear |
| _____ | 5. <i>Ground Cover</i> - ensure that ground cover is sufficient |
| _____ | 6. <i>Ground Condition</i> - monitor soil for erosion or Tower legs settling; tension in guy cables should be equal and not too loose |
| _____ | 7. <i>Belay Benches</i> - ensure that eyebolt anchors and bench construction is secure |
| _____ | 8. <i>External Factors</i> - evaluate any potential problems from nearby trees, people, traffic, etc. |

- _____ c. inspect ladder rungs (inspector can be belayed up ladder or use a prusik safety if rope is rigged with a cord)
- _____ d. inspect quality of pole ends where eyebolts are connected
- _____ e. inspect horizontal swing suspension
- _____ f. always be on the lookout for any damage from lightning
- _____ g. prusik up a rope to inspect upper end of actual swing cable
- _____ h. examine back-up tail for swing cable
- _____ i. examine back-up tails on pole end for horizontal suspension cables
- _____ j. examine connections for swing suspension cables over on Tower
- _____ k. make sure wood chip coverage is adequate in dismount area once grass is gone
- _____ l. examine strand vice at lower end of swing cable and back-up swage on the tip, which is up in the strand vice and prevents the strand vice from sliding off cable

If you have any problems or questions concerning the construction or use of the Tower, please contact Alpine Towers, Inc. immediately. Thanks!

_____ Camp	_____ Mountaineering	_____ Skiing
_____ Caving	_____ Portage	_____ Snowshoe
_____ Canoeing	_____ Rafting	_____ Solo
_____ Cooking	_____ Rappel	_____ Swim/Dip
_____ Cycle	_____ Rock Climb	_____ Unaccomp. hike
_____ Dog Sledding	_____ Ropes Course	_____ Vehicle/Van
_____ Hiking	_____ Run	
_____ Initiative	_____ Sail	Other _____

IMMEDIATE CAUSE (priorities major applicable categories)

_____ Avalanche	_____ Fall on Snow	_____ Medication
_____ Bees/Wasps	_____ Falling Rock	_____ Missing/Lost
_____ Clothing	_____ Falling Object	_____ Pre-existing
Condition		
_____ Darkness	_____ Fast Waster	_____ Psychological
_____ Drugs	_____ Fatigue	
_____ Student misbehavior		
_____ Exceeded Ability	_____ Hazardous animal	_____ Unfit
_____ Failed to follow instruction	_____ Improper equip	_____ Weather
_____ Fall/Slip	_____ Improper tech	
_____ Fall on Rock	_____ Immersion	
	_____ Lightning	
Other _____		

NARRATIVE: (Factually describe how the accident happened, include medical treatment given, and disposition of victim. Attach physician's report if victim was examined by one.)

ANALYSIS: (Include any recommendations, suggestions and observations.)

Instructor/Supervisor _____

CD _____

COMMENTS BY CD AND/OR PD:

REPORT PREPARED BY _____ DATE _____

COURSE DIRECTOR REVIEW BY _____
DATE _____

9. *Pole Connection Points* - closely examine each pole junction; watch for looseness, bolt bending, or pole splits
10. *Pole Quality* - examine all pole members for splitting, decay or unusual stresses or bending
11. *Nuts and Bolts* - tighten all nuts monthly
12. *Handholds* - tighten if needed; monitor for fractures or wear
13. *Tower Events* - inspect each event to assure that it is properly fastened and functioning correctly
14. *Tower Platform* - examine boards for looseness, splitting or splinter
15. *Guy Cables* - note the tension on each guy; the cables should not be very loose (24" or more of play at face level), nor should they be too tight (very little play); they should be snug (6" to 18").
16. *Ground Screw Anchors* - examine anchor rod and eye for fractures; inspect ground around screw anchor for signs of upheaval or erosion; each guy has an anchor as well as each leg of the Tower (which will probably be buried)
17. *Access Prevention Device (APD)* - inspect to ensure that construction techniques are adequate and the APD is serving its purpose
18. *Staffing and Training* - are staff properly trained and qualified to be supervising Alpine Tower activities?
19. *Accidents/Incidents* - are all accidents/incidents reported to ATI?
20. *Swing by Choice*:
 - a. inspect vertical double poles for any looseness at ground level
 - b. inspect guy cables for double poles; check each end and ground anchors (3)

APPENDIX D - Accident/Incident Report Form: sample

Base Camp _____		Course # and Course Description _____	
Age _____		Male _____	Female _____
		Staff _____	Student _____

Check each applicable category:
 INJURY _____ ILLNESS _____ NEAR MISS* _____ OTHER INCIDENT _____

*A near miss had the potential for serious injury, although minor or no injury occurred.

DATE OF ACCIDENT _____ COURSE LENGTH _____
 DAY OF COURSE _____ TIME _____ A.M. _____ P.M.
 GEOGRAPHIC LOCATION _____
 STATE _____

Evacuated from field?	No _____ Yes _____	Method _____
Visited medical facility	No _____ Yes _____	# Days _____
*Any LOST DAYS?	No _____ Yes _____	# Days _____

If patient left course, give: Date left _____ Course day left _____
 Reasons for leaving: Medical _____ Motivational _____ Other _____
 *A LOST DAY is where patient missed one or more days of activity beginning with the day following the incident.

WEATHER: Temp _____ (F) Rain _____ Snow _____
 Wind _____ (mph) Visibility _____

TYPE OF INJURY/ILLNESS OR NEAR MISS (Prioritize major applicable categories)

_____ Abrasion	_____ Fatigue	_____ Puncture
_____ Allergy	_____ Fever	_____ Skin Problem
_____ AMS (altitude)	_____ Fracture	_____ Sprain
_____ Anaphylaxis	_____ Frostbite	_____ Strain
_____ Blister	_____ Gastrointestinal	_____ Suicide ideation
_____ Burn	_____ Hyperthermia	_____ Tendonitis
_____ Concussion	_____ Hypothermia	_____ Unclipping
_____ Contusion	_____ Infection	_____ URI (resp)
_____ Dental	_____ Laceration	_____ Urinary tract
_____ Dislocation	_____ Pre-exist Ill	
Other: _____		

PROGRAM ACTIVITY (Prioritize major applicable categories)
 _____ Backpacking _____ Kayak _____ Service

APPENDIX E - Consultation Services and Workshops Available through Alpine Towers, Inc.

Alpine Towers Inc. provides other services to the field of adventure education in addition to the construction of Alpine Towers. ATI staff members provide professional consultation for adventure education programs regarding a wide range of issues that include training programs for working with people with disabilities, and group facilitation and mediation skills for adventure challenge programs.

If unable to meet a request, ATI refers to a complementary network of consultants whose experience is extensive.

The following list highlights the services that ATI is most interested in providing:

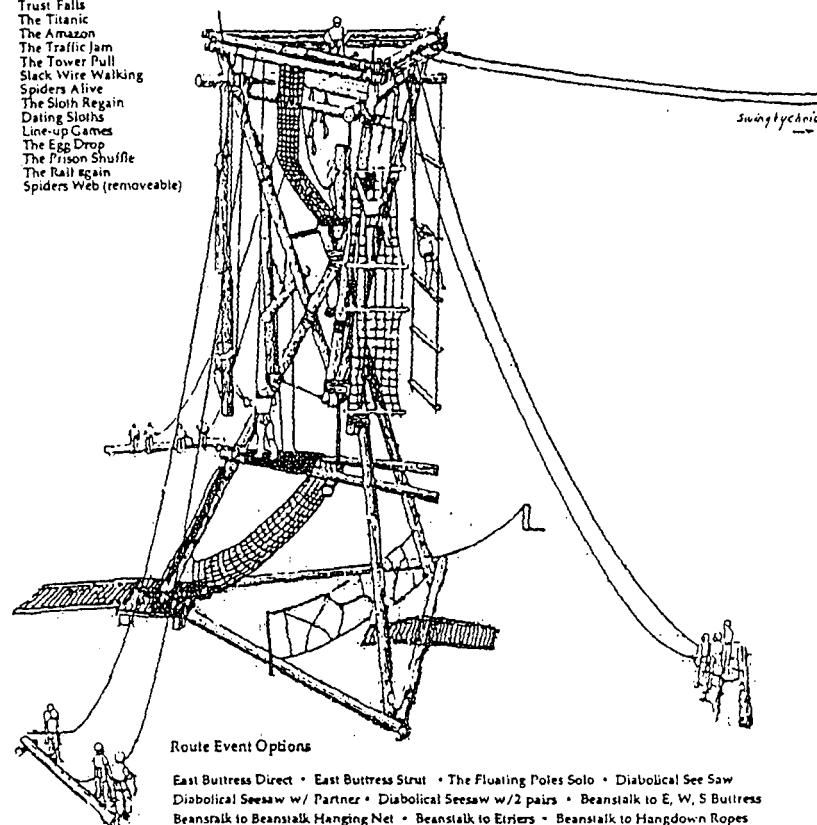
- **Ropes Courses** - design, training and inspections; tree construction in some cases
- **Rock Climbing** - performing safety reviews of climbing programs; teaching lead climbing and lead climber rescue to staff
- **Urban and Wilderness Programs** - design, planning; activities implementation; safety reviews; close and long range planning; staff development
- **Mountain, Rock and Cave Rescue** - evaluation of current programs; specially designed workshops for staff; training in implementation of rescue activities with participants
- **Safety Reviews** - single program activities or entire programs can be evaluated in terms of safety management
- **Intermediate Rescue Skills Training** - focuses on additional rescue techniques as applied to the Alpine Tower and other ropes course designs
- **Facilitation Skills** - focuses on facilitating adventure challenge activities for diverse populations
- **Programming with Corporate Clients** - addresses design and facilitation of adventure challenge activities to meet the organizational needs of the client

- **Universal Adventure Challenge Programming** - provides an overview of management and facilitation of adventure challenge activities for people of all abilities

APPENDIX G - Alpine Tower II Route Diagram

Group Initiatives

The Jump
 The Perimeter Traverse
 The Tai Chi Traverse
 Penny in the Haystack
 Trust Falls
 The Titanic
 The Amazon
 The Traffic Jam
 The Tower Pull
 Slack Wire Walking
 Spiders Alive
 The Sloth Regain
 Dating Sloths
 Line-up Games
 The Egg Drop
 The Prison Shuffle
 The Rail again
 Spiders Web (removeable)



Route Event Options

East Buttress Direct • East Buttress Strut • The Floating Poles Solo • Diabolical See Saw
 Diabolical Seesaw w/ Partner • Diabolical Seesaw w/2 pairs • Beanstalk to E, W, S Buttress
 Beanstalk to Beanstalk Hanging Net • Beanstalk to Etriers • Beanstalk to Hangdown Ropes
 West Buttress Direct • West Buttress Strut • The Missing Link Solo • South Buttress Direct
 South Buttress Strut • The Corporate Ladder Solo • The Corporate Ladder Duo • Easy Team
 Beam • Hard Team Beam • Single Team Beam • The Floating Poles Duo • The Missing Link Duo
 The Knotted Rope • The Tower Center Route • The Ceiling Route • The Tinkerbell Jump • The
 Karma Platform and Register • Beanstalk Platform • Beanstalk Net • Lower Deck and Ramp
 Interior Ramp • The Piano • Teambeam Deck • Entrance Tube • Team Hoist • Counterbalance
 Haul • Swing by Choice • Underneath Beanstalk Net • 4:1 Block and Tackle Self Hoist

APPENDIX F - Rope Use Log: sample

Note to Staff:

Please record the date and usage of each rope. This aids in determining when to retire a rope. If 50% of the nylon sheath filaments are broken and fuzzy, it is time to consider retiring the rope. Average program use would indicate an annual retirement schedule for ropes. Exposure to bleaches, chlorine, battery acid, sulfuric acid, hydrochloric acid, nitric acids or other substances harmful to nylon are reasons for retirement.

Ropes should be washed occasionally to rinse dirt particles from the core and sheath. Use cold water and no soap. Don't pack ropes into a front end loader due to the possibility of rope abrasion against the front door during spin cycle.

Rope # _____ Rope Size _____
Rope Color _____

Manufacturer _____ Rope
Model _____

Purchased from _____ Date _____

DATE / INSTRUCTOR USE / COMMENTS SIGN-IN

APPENDIX H - Alpine Tower Curriculum Models

The Alpine Tower is a versatile and powerful tool for achieving a wide variety of educational objectives aimed at growth and development of the individual as well as small groups. The following curriculum models are a sampling of the creative uses of the Alpine Tower.

Short Term Program (1 - 4 hours)

- group initiatives - low to the ground group problem solving events; accommodates up to 36 people (3 groups simultaneously), or...
- high elements - actual climbing on the Alpine Tower, individually or while tethered to a partner; staff need to belay (unless participants are proficient at belaying from previous Tower experience), or...
- group initiatives and high elements - a combination of both programs including processing session

Medium Length Program (1 - 2 days)

- group initiatives and processing (Day 1 - am)
- belaying and low practice climbing instruction (Day 1 - pm)
- warm-up initiatives (Day 2 - am)
- belay refresher and individual challenge climbs (Day 2 - am/pm)
- partner climbing and processing (Day 2 - pm)

Long Term Program (3 or more half-day sessions)

- Session 1 - group initiatives and processing
- Session 2 - belaying and low practice climb instruction
- Session 3 - belay review and individual climbs (SE Face)
- Session 4 - group initiatives and processing
- Session 5 - warm-up initiative and individual climbs (SW Face)

- *Session 6* - partnering on events (include North Face)
- *Session 7* - partnering on events
- *Session 8* - Tower Pull initiative (usually requires 18 people)
- *Session 9* - begins refinement of rock climbing skills - especially appropriate for programs culminating in a student led and designed climbing trip; history of mountaineering, rock climbing, bouldering, sport climbing; additional instruction on movement, resting, quality of ascent, flo- descending; ground school rappel lessons; practice rappels from Team Beam (20' up)
- *Session 11* - descending continued: rappel practice from top of Tower (50') with back-up belay; demonstrate prusik self-rescue techniques
- *Session 12* - ascending ropes through pulley on Team Beam
- *Session 13* - ascending continued: ascents to top of Tower and also up to 600'
- *Session 14* - rescue practice on Tower: students practice actual Alpine Tower rescue pick-off procedure from various locations
- *Session 15* - basic mountain rescue session: how to rappel down to a victim and assist to ground
- *Session 16* - highline snatch/trust zip: rescuer picks off victim while team controls their landing with declined highline
- *Session 17* - night rescues: with head lamps and instructor observing any transfer clips, students practice climbing and rescuing partners
- *Session 18* - stretchers: introduction to rescue stretcher (SKED, Stokes, etc.) and horizontal litter lower
- *Session 19* - vertical litter lower: rotate litter attendants
- *Session 20* - telfer lower: one of the most dramatic of all rescue techniques - most effective when using 300' lengths of ropes from top of Tower over a deep ravine or gorge: ground school ascending practice (mechanical ascenders or traditional knots)

- warm-up, spotting and hazards of low group initiatives
 - remove rings and wrist jewelry
 - no fingers in eyebolts
 - competent staff
 - thorough belay training
 - check knots/harnesses
6. dealing with "what-if" situations (solutions in parentheses):
 - girth hitch descender or t-shirt caught during lower (climber unweights rope; 3 people pull on belay rope; 2 people pull on 2:1)
 - descender detaches during lower (reconnect; 3-4 hands left on rope; hip belay; climber to Tower; round turn on bench)
 - rope on rope is discovered during lower (if no damage, move rope; if bad, rescue climber)
 - bad pendulum scenario (re-position rope; stabilize climber on Tower; create a directional for rope; assistance from near-by climber)
 - inattentive belayer and climber has great deal of slack (stabilize climber; up rope; hip belay)
 - unconscious person on swing (use step ladder to set up swing rescue procedure - see Illustration 6)
 - legs in cargo net/climber too tired to untangle (vector pull; staff or nearby climber assist; if medical emergency cut net)
 - head entrapment in net (climber self-rescues; unbuckle helmet; pull up on belay rope; staff cuts net; vector pull; assist from nearby climber)
 - incorrect knot discovered on upper deck, during mid-ascent and/or on belayer (stabilize climber; near-by climber checks knot and attaches to victim's harness; staff climbs up)
 7. review of belay basics (Tower style) and standing hip belay (climber lowered from 10' only)
 8. importance of belay monitor

APPENDIX I - Alpine Tower Intermediate Rescue Training

A. Objectives of Training

The basic rescue techniques taught during regular Tower trainings are all that are really needed for staff to safely conduct programs. The Intermediate Rescue Training is useful in two major areas. It provides staff with a stronger background of training for unusual rescue scenarios (on the Tower and elsewhere), as well as provides models for participant activities.

B. Curriculum Length

Most programs typically request a one-day training customized to the needs of their staff. The one day training usually contains the following information: points one through five below plus discussion of swing rescue, vector pull, fixed vector pull, solo ascents with prusiks, rappel lowering system, prusik brake hand, and GriGri use. Two day trainings can cover more topics and/or allow more practice time.

C. Curriculum

1. review of medicals and risk forms
2. overview of session, goals, introductions, needs assessment, warm-up initiative
3. assessment of participant's background (Tower, climbing, rescue)
4. brainstorm (on newsprint) all the possible things that can go wrong during an Alpine Tower session
5. prevention is the key (the following points will prevent many accidents and near-misses):
 - medical screening, challenge by choice, atmosphere, signs of physical or emotional stress

9. teach HIOBS belay technique (guide hand reaches over and holds brake rope while brake hand slides back to initial position)
10. review of basic Tower rescue procedure (using near-by participant; using staff and rescue rope)
11. using Tower structure or sling/carabiner directionals during basic Tower rescue procedure
12. ascending techniques - 3 prusik knot method (for rescue knowledge and also as participant events; always use separate belay)
13. Tower rappels with pre-rigged RLS (Rappel Lowering System) (see Illustration 3 for Tower RLS), practice in Tower base first
14. Tower rappels using the prusik brake hand (see Illustration 9)
15. raising climber with counterweight method (mobile prusik station) for stuck helmet, hand, finger or foot
16. Team Hoist - 7 people, mobile, rescue, team event, also used for people with disabilities
17. haul systems - 2:1 and 3:1 on Team Hoist (rescue lesson for participants, may use tree or fence for anchor because bench will slide)
18. lead climbing - for replacing haul lines, seriousness, static vs. dynamic rope; do not fall - take easiest route, rope drag, dynamic belay inherent with descender, frequent protection to lessen forces (eyebolts, cables, tethers)
19. staff evaluate sessions with ATI Evaluation Form, ATI trainer returns forms and list of topics covered to ATI

20. train staff in the use of the GriGri belay device with emphasis on the four GriGri related safety policies

APPENDIX K - Informed Consent/Liability Release: sample

I am aware and understand that participating in _____ program, including the ropes course, involves a potential risk of physical injury and I understand that the programs are physically demanding and potentially dangerous. I agree and hereby state that I am solely responsible for my own participation and for my own physical and emotional well-being. I am aware and understand that all of the program activities are strictly voluntary and it is my own choice to participate in each actively to whatever degree I deem appropriate, after due consideration of my own physical health, physical abilities and medical condition. I further state that, in choosing to participate, I am not under the influence of any chemical substance including alcohol. I willingly and knowingly assume for myself, my heirs, family members, executors, administrators and assigns all risk of physical injury and emotional upset which may occur during or after participating in any aspect of the program and hereby agree to hold Alpine Towers, Inc., its employees, its instructors, facilitators and agents harmless for any liability arising out of my participation in the program. Should Alpine Towers, Inc. or anyone acting on their behalf be required to incur attorney's fees and costs to enforce this agreement, I agree to indemnify (to shift the responsibility for payment of damages to someone else) and hold Alpine Towers, Inc. harmless for all such fees and costs. This release does not, however, apply to any physical injury or emotional harm caused by negligence or willful misconduct of Alpine Towers, Inc., its employees, its instructors, facilitators and agents.

I have had sufficient opportunity to read this entire document. I have read and understand it, and I agree to be bound by its terms.

Name (please print)

Course/Company

Signature

Date

*If the participant is under the age of 18, their parent or guardian must also sign below.

Parent/Guardian Signature

Date

APPENDIX J – Alpine Towers, Inc. Medical Questionnaire: sample (short format: for use with adventure activities of one day or less)

Your Name _____
Please Print
Age _____

ALPINE TOWERS, INC. MEDICAL QUESTIONNAIRE - SHORT FORMAT (for use on one day or less adventure activities)

Special note to program staff: this is a sample used during Alpine Tower staff trainings. The actual form you develop may need to be much more detailed. Your form should be designed by your legal and medical advisors.

Please read: This form is intended to remind staff and participants of the seriousness of attempting adventure activities with an old, pre-existing injury, heart problem or other conditions which might be aggravated by the event.

Questions	Response	
1. Any pre-existing injuries (ankles, knees, back, etc.) that might be aggravated by the event?	Yes	No
2. Taking any current medication?	Yes	No
3. Any heart problems or heart medication?	Yes	No
4. Any pressure or coercion from employer or others to participate?	Yes	No
5. Do you have high blood pressure?	Yes	No
6. Do you have any allergies (food, bees, insects), reactions to medications or physical limitation?	Yes	No
7. Do you foresee any problem participating in the upcoming Alpine Tower activity due to a lack of physical exercise back home?	Yes	No

In case of emergency, contact: _____
Phone: _____

Note to Staff: If "YES" is circled, please discuss with the participant. Create quiet time and serious tone for filling out information. Slow down and take the time to follow-up the "YES" responses with folks. If, in your judgement, with the use of the WMA Medical Screening Manual, a participant should not engage in the activities due to health or safety risks, then ask them to observe only.

Participant - please read and sign
I have honestly disclosed to the staff any medical, psychological or personal reasons that might affect my safety or the safety of others during these events. I will remember that a "Challenge by Choice" atmosphere exists at all times and I should not feel pressured to participate. I certify that I have adequate insurance to bear any additional cost of such injury or damage.

Signature _____

Date _____

APPENDIX L - Advantages of the Alpine Tower over Traditional Ropes Courses Also Built by Alpine Towers, Inc.

Even though ATI specializes in new and creative designs for challenge courses utilizing trees, poles, indoor environments, ships, etc., we continue to be most excited about the Alpine Tower concept. Here are a few of the reasons why:

A. Structure

- visually impactful design intrigues participants - also excellent for marketing purposes
- the 50' tall Tower is more exciting and exhilarating to climb than a climbing wall due to the exposed arêtes and buttresses
- additional events such as the Giant Swing by Choice, Double-sided Climbing Wall, Rescue Exercise, Zip-wire and tree elements can be added
- longevity - programs can expect 15 to 20 years of safe service from their Tower
- you do not have to worry about the health and safety of trees
- you do not have to worry about soil compaction destroying root systems
- you do not have to bring in an arborist for periodic assessments
- Tower does not have a multitude of support guy wires as is required in vertical pole and tree courses - the Alpine Tower has a total of 3 guy wires
- Tower is grounded for lightning
- very low annual maintenance

B. Curriculum Considerations

- educational curriculums can range from one hour to 20 days in length

- facilitators can easily increase or decrease the level of challenge to meet the individual needs of participants
- participants can revisit the Tower numerous times for new and different challenges
- as many as 36 people (3 groups of 12) can participate in low events simultaneously
- one participant (with staff belay) to 18 participants can be actively involved while high elements are being conducted
- partnering and individual challenges can be offered
- small groups of 3 participants can function as a team
- easily modified to include people with disabilities
- unlimited possibilities for creating new initiatives within the Tower base
- overnight bivouacs can be staged on the Tower deck

C. Safety

- participants are tied in at all times - no transferring of ropes or carabiners
- three staff can safely supervise 18 participants
- easy for novice staff to master necessary skills
- simple rescue system
- access prevention devices prevent unauthorized access

Staff Training

An ATI trainer will train your staff to safely operate all Alpine Tower activities. Due to ATI's simple but effective training model, even novice staff can learn to demonstrate proficiency and comfort in operating protocols and rescue procedures. (Note: ATI does not certify training participants.)

ATI Instructor's Manual

The Alpine Towers, Inc. Instructor's Manual is a valuable resource for program staff as it provides new safety information and reinforces all policies and procedures. The manual is periodically updated by ATI, and is distributed to all Tower programs.

ATI Newsletter Notebook

ATI publishes the Alpine Tower Newsletter (and index) semi-annually. This document contains news and developments related to ATI designs and the industry. The newsletters (and special safety bulletins) keep Tower managers abreast of current safety concerns. All newsletters are filed in a special notebook in the program manager's office for easy reference.

Alpine Tower Symposiums

ATI Symposiums are held every 18 months, and provide ideal opportunities for program staff to network with fellow managers of Alpine Tower structures. ATI builders, trainers and reviewers, and industry representatives are on hand to conduct skills workshops and present new information and standards.

Alpine Tower Safety Reviews and Structural Inspections

Safety reviews and inspections conducted by trained ATI Reviewers occur annually in order to meet the national standards of the

APPENDIX M - Alpine Towers, Inc. Safety Statement: 1989 - 1996

The purpose of the Alpine Towers, Inc. Safety Statement is to provide potential clients and their boards, insurance groups, and programs with existing Alpine Tower structures with an overall picture of the risk management system behind each product, and to address the question: "Just how safe is Alpine Towers, Inc.?"

The Alpine Towers, Inc. (ATI) Safety Management System

Engineering

The Alpine Tower design has been approved by qualified engineers for safety, longevity and structural integrity. All designs meet standards set forth by the Association for Challenge Course Technology (ACCT) and the Climbing Wall Industry Group (CWIG).

Design

Every product is designed to function as safely as possible, assuming human error is the weakest link. ATI President, Mike Fischesser, has been actively involved with safety in adventure education, beginning with his involvement in Scouting in the 1960's. Through his long history with the U.S. Outward Bound Schools, he provides critical insight to minimize human error in every design.

ATI Building Team

Each ATI building team is comprised of mature adults with extensive experience in construction and in adventure education activities. The majority of ATI's main builders have been involved in over 120 ropes courses and climbing wall construction projects. ATI building team members are familiar with rigging and rope work, and most are lead climbers with solid climbing backgrounds.

Association for Challenge Course Technology (ACCT). A full, comprehensive review is done the first year, then inspections of the structure occur on years two and three, then the comprehensive is repeated on year four. The review results in a comprehensive report containing narratives pertaining to staff, training, design structures, etc. The review is an excellent opportunity for ATI to assess program safety and share information from other program reviews.

Consultation

ATI staff are ready and eager to offer free consultation at any time to Tower program managers and staff, and do so on a regular basis.

Equipment

With every ATI design, ATI furnishes the finest climbing and safety equipment available. ATI staff are very familiar with all equipment as they must rely on it throughout the year on construction projects and on personal expeditions.

Voting Member of Association for Challenge Course Technology

Alpine Towers, Inc. is a voting member of the Association for Challenge Course Technology. Members are subject to two independent reviews from industry peers. Voting member status is not easily obtained, and offers clients the assurance that the voting member organization is sound.

External Safety Reviews of ATI

At ATI's request, Project Adventure, Inc. has conducted two safety reviews of Alpine Tower designs and safety procedures. Additionally, ATI has been reviewed by A.C.C.T. President Randy Smith of Inner Quest, Inc. All reports have been favorable and are available upon request.

Project Adventure, Inc. Twenty Year Safety Study

Project Adventure, Inc. has published a safety study based on Accident/Incident reports over a twenty year period. The report offers critical information regarding obvious trends and Lost Time Injuries. (The term "Lost Time Injuries" refers to injuries that result in at least one day lost from school/work/program activities following the day of the accident.) The accidental injury rate over the twenty year period for low and high challenge course use is 4.33 injuries per one million hours of program exposure. This rate can be compared to rates of other outdoor/ adventure activities as follows: backpacking: 192.00; downhill skiing: 724.00; basketball: 2,650.00; soccer: 4,500.00. Based on reports and anecdotal evidence from Alpine Tower programs from 1989 through 1996, it appears that the accident rate relating to Alpine Tower designs is far lower than 4.33.

ATI Accident/Incidents

From 1989 through 1996, the most serious ATI related incidents are as follows:

- broken kneecap: resulting from a fall while walking across a (2-foot high) base rail
- knee strain: resulting from fall from base rail
- broken leg: resulting from impact with dismount apparatus on zip wire (Note: ATI prefers swings over zips)
- broken leg: occurred when a S.W.A.T. team member attempted to slide down a rope with hand friction only, rather than using a rope belay (Note: ATI feels that Alpine Tower owners should never have turned Tower over to S.W.A.T. Team.)
- thigh laceration: from a sharp bolt end that required 3 stitches
- broken wrist: resulted from a backwards fall while seated on base rail

APPENDIX N - Most Common Safety Review Recommendations

Alpine Towers, Inc. annually conducts comprehensive safety reviews and structural challenge course inspections for numerous programs. The majority of these reviews and inspections are conducted at organizations possessing an Alpine Tower or other ATI climbing wall or challenge course design.

ATI Safety Reviews examine safety systems related to the actual program activity, such as emergency plans, medical screening, staff training, management stretch, accident/near-miss trends, etc. Full safety reviews occur one year after installation, then every third year. Structural inspections are performed on the second and third years of each cycle. Standard reviews are considered most valuable, and may be requested at any time.

The following list represents some of the more common recommendations appearing in review reports. If you are interested in learning more about a particular recommendation, please contact the ATI office.

Reviews and Inspections

1. Insure that your Tower is being reviewed or inspected by ATI on an annual basis.
2. Respond, in writing, to the recommendations in the report and indicate a plan and date for implementation.
3. Insure that the Tower Inspection Sheet is filled out monthly by someone knowledgeable in challenge course construction and safety.
4. Inspect the upper primary swing connection monthly. (ATI will inspect the backup connection on an annual basis.)

Other than above mentioned injuries, there have been a small number of minor incidents and occasional splinters. Overall, ATI has been very impressed with the safety records of the organizations managing Alpine Tower programs.

Liability

ATI possesses a one million dollar liability policy that has a "completed operations" clause. This allows the policy to cover past projects since the date of policy. Our insurance carrier insures many of the major challenge course installation firms in the United States, as well as many summer camps conducting ropes course and adventure activities.

References

Association for Challenge Course Technology: Randy Smith (703) 478-1078
Association for Experiential Education: Jeff Liddle (303) 440-8844
Outward Bound@USA: Lewis Glenn, Priscilla McClung or Allen Grossman: (914) 424-4000
Project Adventure, Inc.: Bob Ryan, Dick Prouty (508) 468-7981
Organizations with Alpine Tower designs: list available upon request (704) 733-0953

Management

1. Tower coordinator's overall workload should be re-evaluated to insure that he/she has adequate time to allocate for proper safety management.
2. Develop a safety committee within the Board of Directors to provide supervision in the area of medical screening, Acknowledgment of Risk forms, first aid kit contents, emergency action plan, etc.

Staff and Training

1. Develop engaging in-house trainings to include topics such as incident prevention, methods for addressing "what if" scenarios, etc.
2. Consider adopting Wilderness First Responder certification as a minimum standard for program staff.
3. Insure that an adequate apprenticeship/training period exists for Tower staff.
4. Consider hosting an ATI Intermediate Rescue Skills Workshop which focuses on belay escapes, fixed and temporary vector pulls, safe ascending techniques, use of GriGri belay devices, pre-rigged rappel lowering systems, prusik brake hand, Swing rescue, etc.

Accidents, Incidents, Near-Misses

1. Keep the access prevention devices (APDs) well-greased.
2. Insure proper "Ropes Course - No Trespass" sign placement.
3. Document and report significant accidents, incidents, or near-misses to ATI.
4. Be certain that your program has an Accident/Incident/Near-Miss Report Form.
5. Establish a healthy atmosphere so that staff feel comfortable reporting accidents and especially near-misses. (Near-misses are defined as near-injuries or minor injuries that have the potential for serious injury or fatality.)

Emergency Procedures

1. Develop and rehearse an emergency action plan for a serious injury or fatality on the Alpine Tower.
2. Insure that staff understand the basic Alpine Tower "pick-off" rescue, lowering technique and the fixed and temporary vector pull.
3. Insure that staff are trained in mid-zip wire trolley jam rescues.
4. Have a pair of para-medical shears on hand for cutting ropes, hair or clothing. (ATI now recommends the para-medical shears over the hacksaw blade due to the impractical nature of cutting hair with a hacksaw blade.)
5. Insure that staff require the removal of rings or taping of fingers if rings can not be removed, prior to climbing the Tower.

Policies, Procedures, Documentation

1. Insure that all staff have a current copy of and are familiar with the Alpine Tower Instructor's Manual.
2. Disperse copies of all Alpine Tower Newsletters to all Tower staff.
3. Document in writing any policies or procedures that exist in addition to ATI policies and procedures.
4. Consult with ATI regarding deviation from ATI safety policies.

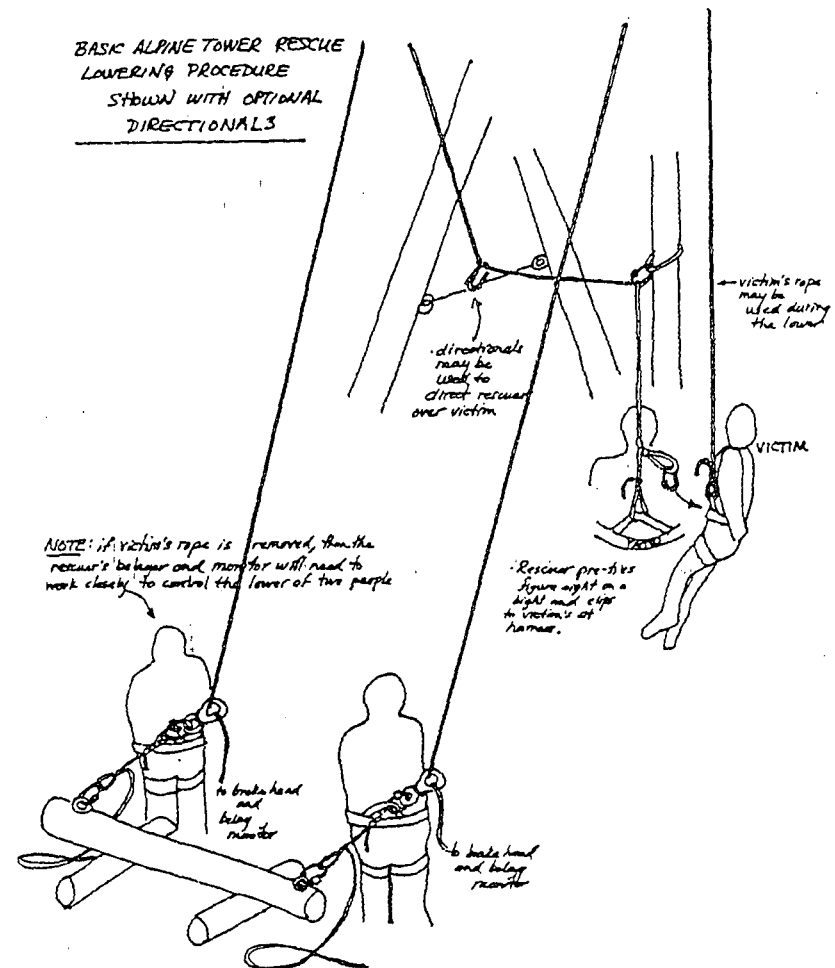
Equipment

Retire any climbing ropes with glazing on the sheath. (This does not apply to the Swing Haul Rope, which is to be used for hauling up the swinger and is not to be used for belaying due to probable glazing.)

Tower Structure

1. Apply Total Wood Preservative (TWP) annually to all lumber and Alpine Tower poles (including Rescue Exercise poles, but not Swing poles).
2. Place wood chips, bark mulch or pea gravel on bare dirt areas to lessen grit in the rope.

**ILLUSTRATION 1 – Basic Alpine Tower Rescue Lowering Procedure
(Shown with Optional Directionals)**



M. F. Schuster 5/96

Assessing Participants

Contact Wilderness Medical Associates (WMA) and consider purchasing its Medical Screening Guide.

ILLUSTRATION 2 – Alpine Tower Vector Pull Rescue Procedure

ALPINE TOWER VECTOR PULL RESCUE PROCEDURE

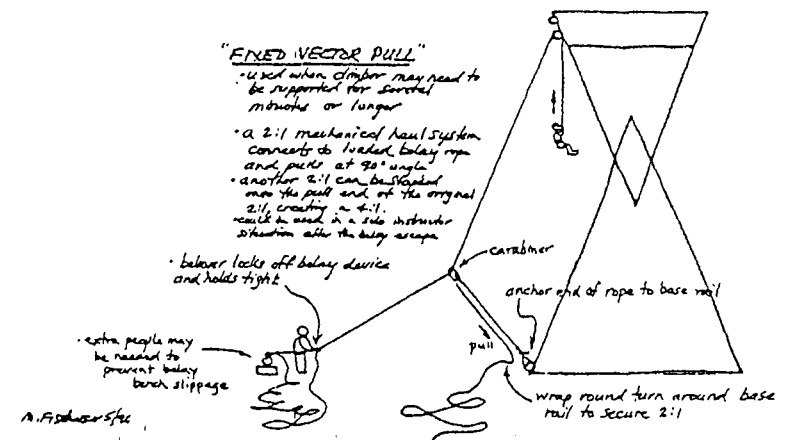
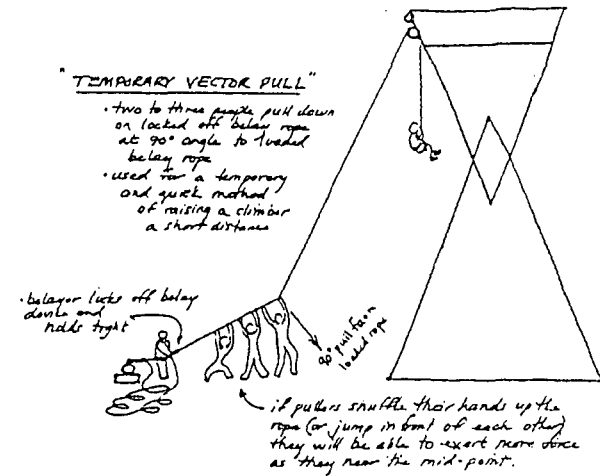
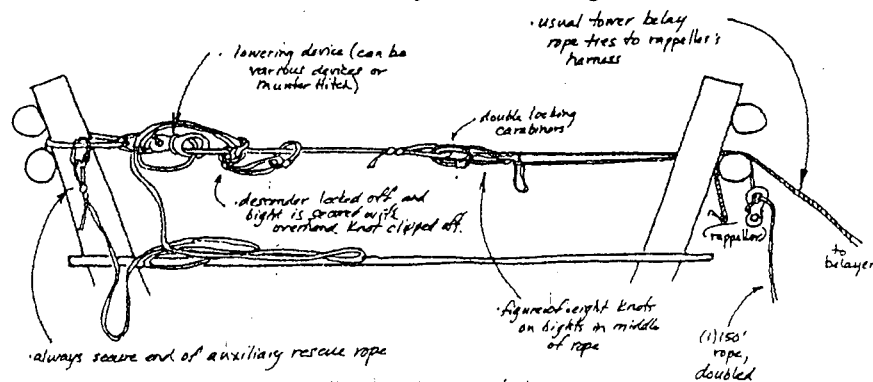


ILLUSTRATION 5 – Basic Alpine Tower Belay Set-Up

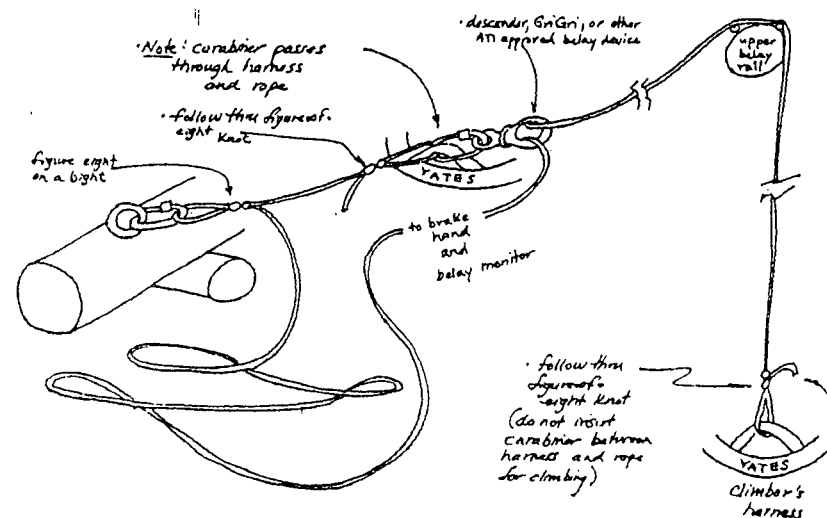
BASIC ALPINE TOWER BELAY SET-UP

NOTE: a useful rescue technique for dealing with difficult situations should the victim need to be lowered quickly while still on 'belay'.



- victim frees self by doing leg wrap
- brief pull on belay rope
- victim steps up in pulld
- victim steps up in striver

M. Fischerer, 5/96



- lock knot is not necessary with figure-of-eight family of knots

M. Fischer 5/96

ILLUSTRATION 4 - ATI Method of Solo Ascents of the Alpine Tower

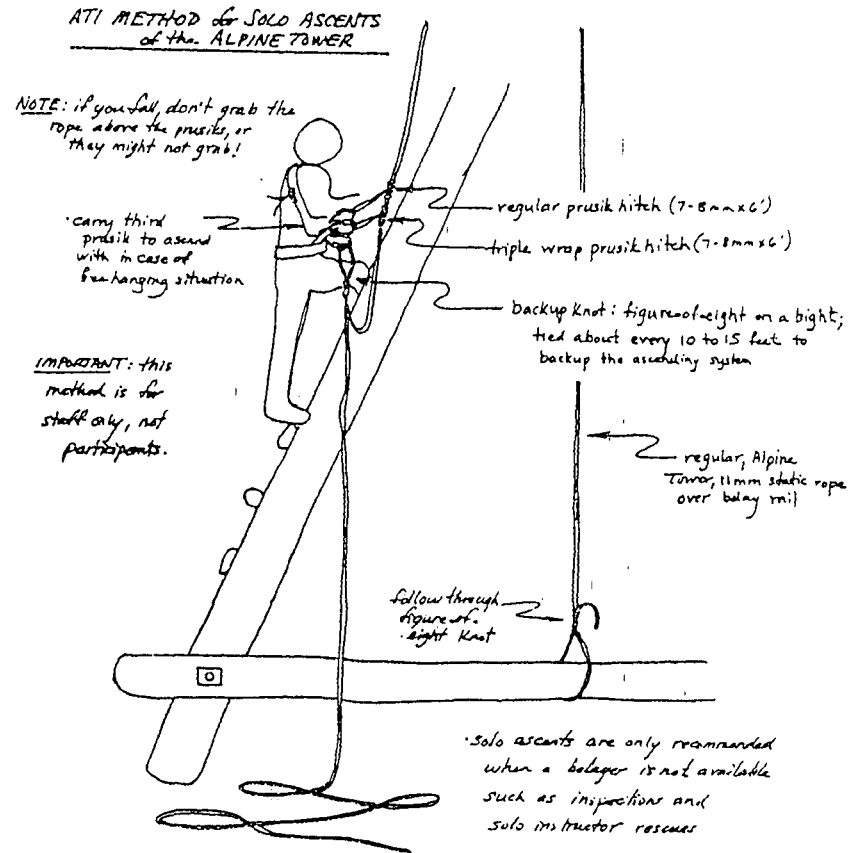
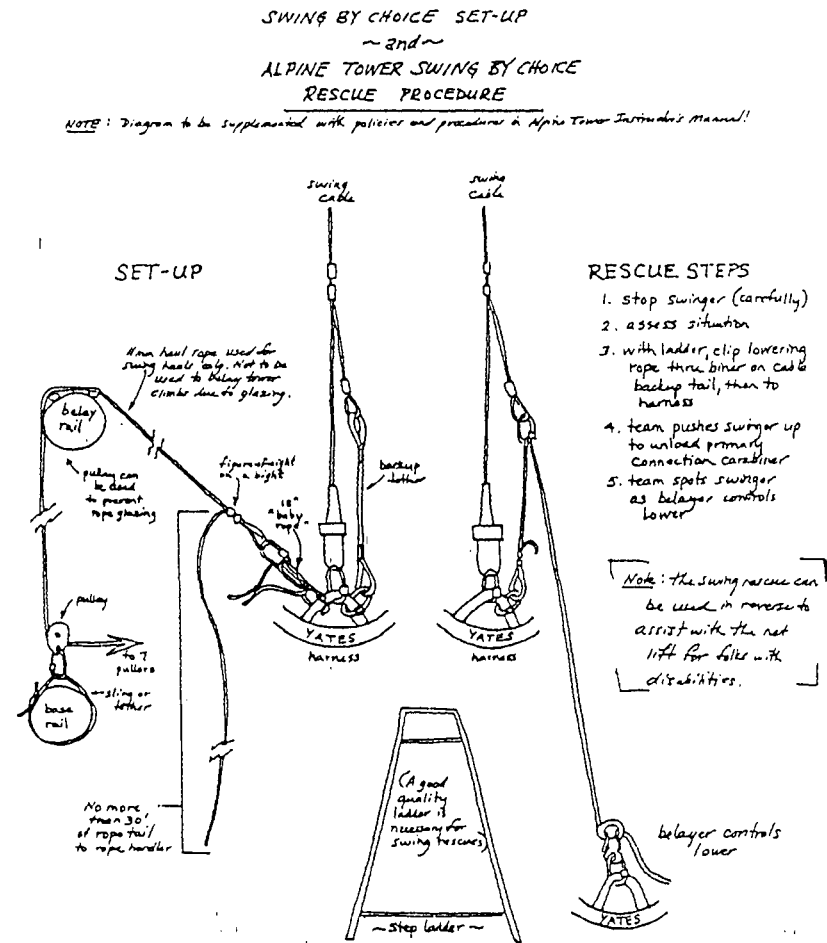
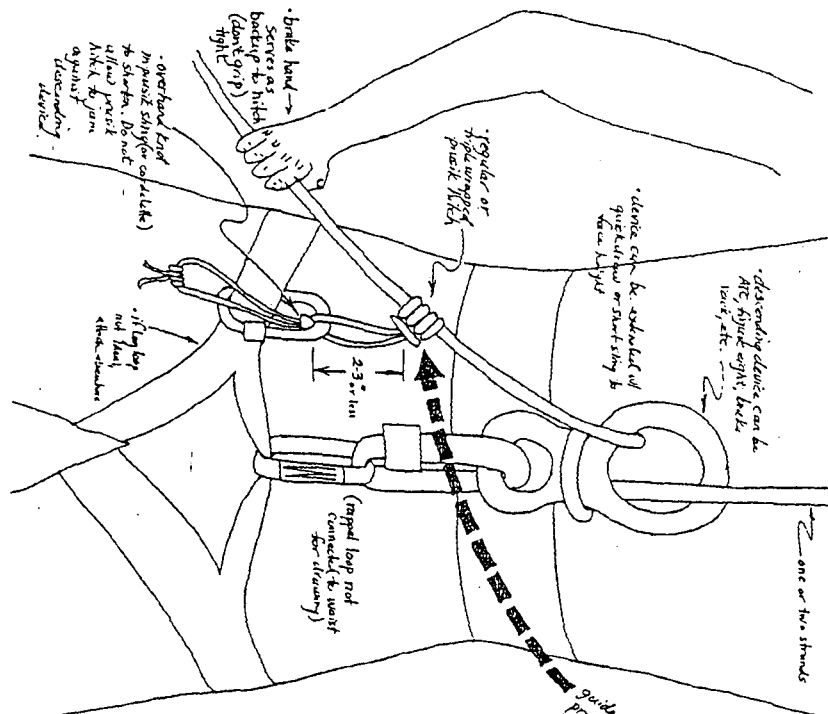


ILLUSTRATION 6 - Alpine Tower Swing by Choice and Swing by Choice Rescue Procedure



M. Fischer 5/96

ILLUSTRATION 9 - Prusik Brake Hand for Rappelling



* for rappelling, not belaying!

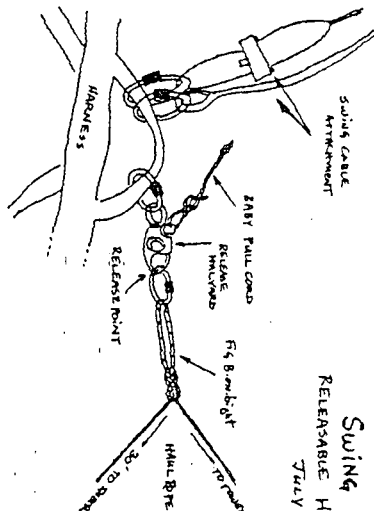
* Alpine knot requires are still required to use a separate belay rope!

Guide hand turns prusik hitch. This controls the descent rate, not the brake hand. To stop, allow prusik to grab, to descend, gently score prusik down.

"The Prusik Brakehand"
(a.k.a. brake off rappelling)

- Notes:
1. Same(S/L) Wilmington Prusik rope is ideal for prusik and create the material (available thru Cone Ropes, Inc. 800.335.5791).
 2. I learned of this technique thru friends at the American Alpine Institute (202-671-1505).
 3. It is one of the most innovative safety practices I have seen in 10 years.
 4. I use it every time I rappel. This technique can dramatically lessen rappel incidents and accidents.
 5. A Backup knot or auto block rope has also been used instead of the prusik hitch.
 6. Even in, despite situation participants are mostly by using this technique.
 7. Participants must be taught the potential danger of carrying the prusik hitch over the edge of which they are rappelling.
 8. The following is from a personal communication with a rappelling instructor.
 9. Drawing prepared by Ted Schindler of NOLS by Mike Fischer - January 1995

ILLUSTRATION 7 - Swing by Choice: Releasable Halyard Set-Up

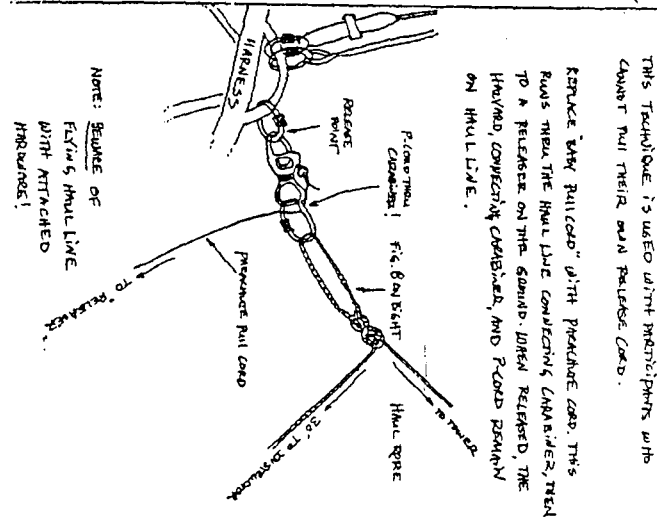


Swing by Choice
RELEASABLE HALYARD SET-UP
JULY 10, 1996

THIS SET-UP CAN BE USED WITH PARTICIPANTS WHO ARE CAPABLE OF PULLING THEIR OWN "BABY PULL CORD".

IN THIS TECHNIQUE, THE RELEASABLE HALYARD REMAINS ON THE INSIDE OF THE GUIDE.

IT IS VERY IMPORTANT THAT THE 30" HALL LINE TAIL IS MONITORED WELL AND HELD SECURELY, WHEN THE SWINGER RELEASES THE FIG. 8 ON A RIGID AND THE REMAINING CAPABILITIES MAY BE TESTED TO FIT SOMEONE ON THE POWER. THEREFORE, CLIMBERS SHOULD ONLY BE ON OPPOSITE SIDE OF THE POWER FROM SWING.

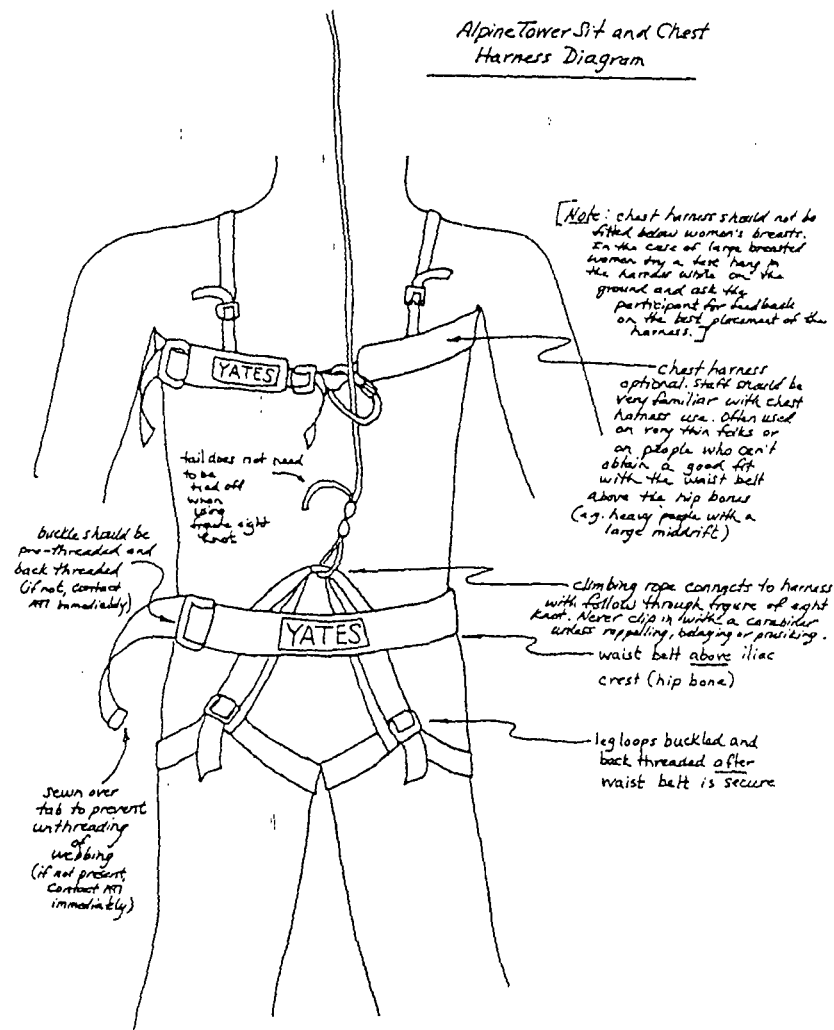


THIS TECHNIQUE IS USED WITH PARTICIPANTS WHO CANNOT PULL THEIR OWN PULLING CORD.

REFLECT "BABY PULL CORD" WITH PRUSIK CORD. THIS PULLS THE HALL LINE CONNECTING CAPABILITIES, THEN TO A RELEASE ON THE GUIDE WHEN RELEASED, THE HALYARD, CONNECTING CAPABILITIES, AND PULLED REMAIN ON HALL LINE.

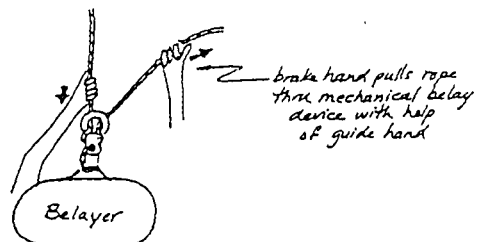
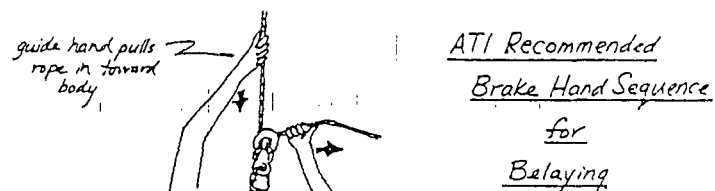
NOTE: BECAUSE OF EXCESS HALL LINE WITH ATTACHED THROUGH!

ILLUSTRATION 10 – Alpine Tower Sit and Chest Harness

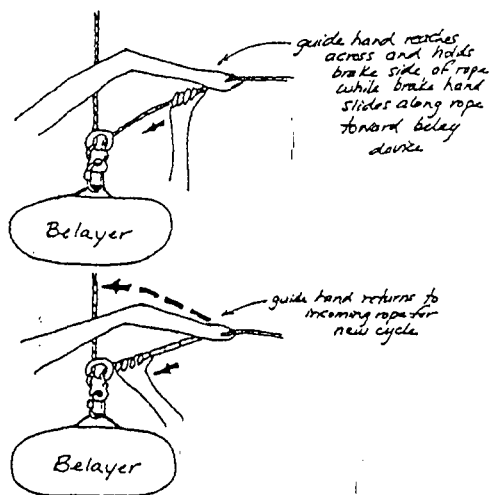


M. Fischer 11/96

ILLUSTRATION 12 - Brake Hand Sequence for Belaying

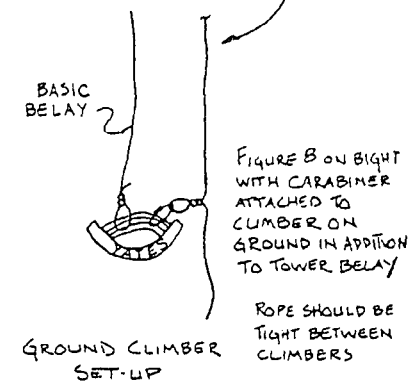
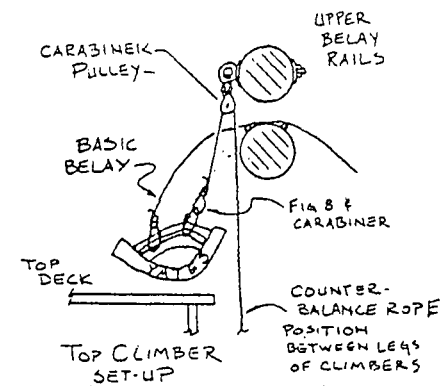
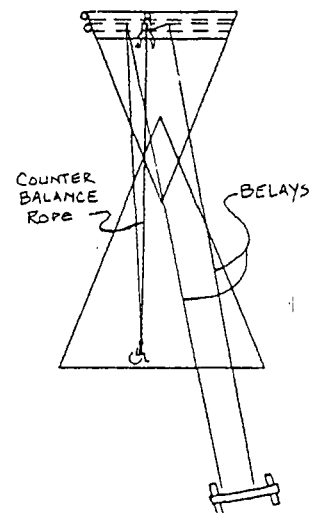
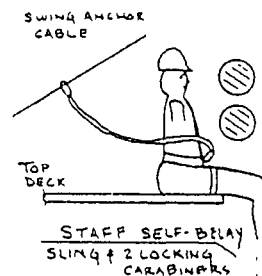
Notes:

- brake hand remains on rope at all times
- in the event of a sudden fall, the brake hand pulls down, creating sharper bends in the belay device
- only figure-eight, eight's descend or Gri Gri's are approved RTI belay devices. Staff must be trained in Gri Gri use. Other device or methods must be approved by RTI in writing.



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ILLUSTRATION 14 - Human Counter-Balance Initiative



D. ROGERS

1/97

Alpine Towers, Inc.

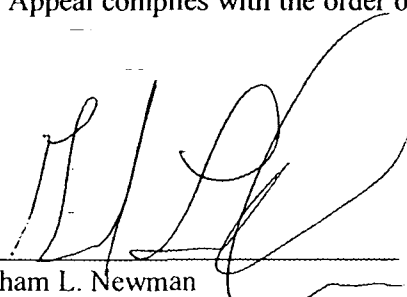
INSTRUCTOR'S MANUAL

**ALPINE TOWER I
ALPINE TOWER II**

**Third Edition
1997**

CERTIFICATE OF COUNSEL

The undersigned counsel certifies that the Record on Appeal contains all material proposed to be included by any of the parties and not any other material. Further, the undersigned counsel certifies that the Record on Appeal complies with the order of the Supreme Court dated August 13, 2007.



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November 10, 2010
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