

INDOOR CLIMBING WALLS AND ADVENTURE COURSES

STANDARDS, GUIDELINES, AND RECOMMENDATIONS

FOR

DESIGN, CONSTRUCTION, AND MAINTENANCE



EVALUATION **INSPECTIONS** **TRAININGS** **REMEDIAATION** **INSPECTIONS** **GRANTS** **DE-ESCALATION & DON'TS** **ERGONOMIC ASSESSMENTS** **FALL PREVENTION** **COST SAFETY** **SECURITY** **RISK** **MANAGEMENT** **LEGAL** **VSBIT** **RESOURCES** **HUMAN FMLA RESOURCES** **PLAYGROUNDS** **METHOD** **DO'S & DON'TS** **ERGONOMIC ASSESSMENTS** **FALL PREVENTION** **COST SAFETY** **SECURITY** **RISK** **MANAGEMENT**

This document was created to assist VSBIT Multi-line Members with the design, installation, maintenance, equipment, and activities associated with indoor climbing walls and adventure courses. This document contains standards (when available), guidelines and recommendations in these six listed areas.

- I. PLANNING**
- II. DESIGN**
- III. CONSTRUCTION/INSTALLATION**
- IV. MAINTENANCE**
- V. EQUIPMENT**
- VI. ACTIVITIES**

These guidelines are meant to be used in conjunction with the SU/SD's own procedures and guidelines. The VSBIT Multi-line program and its staff assume no responsibility or liability for any loss, damage or injury resulting from the use of the material contained herein.

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I. PLANNING

The planning stage for any climbing wall or adventure course (referred to as the "structure") should address concerns in each of the specific areas. A comprehensive plan will improve efficiency in the other guideline areas and help ensure the overall project design encompasses a comprehensive list of concerns.

A climbing wall or an adventure course in the concept stage of development should include attention to planning details in each of the specific areas. Specific planning concerns are addressed in each of the listed topics.

The following are resources that may contribute to your planning, design, installation and operation:

The Association for Challenge Course Technology (ACCT)

Challenge Course Standards

P.O. Box 255 Martin, Michigan 49070-0255

Phone: 616-685-0670

www.acctinfo.org

The Climbing Wall Industry Group (CWIG)

Specifications for Manufactured Climbing Walls (see reference section on ASTM submittal)

A Guide to Building Your Climbing Wall

Other useful information and publications

You can reach CWIG through ORCA.

Outdoor Recreation Coalition of America

P.O. Box 1319

Boulder, CO 80306

Web site: www.orca.org

Email: infor@orca.org

Phone: 303-444-3353

Boy Scouts of America (BSA)

www.scouting.org

www.ropesonline.org

Always check with your district office (Superintendent or Business Manager) during the planning phase! Your district may have more stringent requirements for these structures.

II. DESIGN

The design of a structure is the first stage of development. Ideas to incorporate in the design are the size, shape, location and security of the structure. The structure should be designed by a qualified individual.

Checklist for a *New or Existing* climbing wall:

1. A **new** climbing wall should be designed by a licensed **Structural Engineer**, preferably with a background in climbing walls/adventure courses.
2. It is recommended that the installation of the structure be performed by a qualified state licensed general contractor, also with a background in these structures.
3. A post-construction inspection by the structural engineer is also recommended to verify construction followed design specifications.

In order for **existing** climbing wall structures to be utilized:

1. They must first be inspected. A licensed Structural Engineer must perform this inspection.
2. The Structural Engineer must inspect the following:

System Soundness, and
Site Specific Anchorage System

II. DESIGN (Cont.)

RECOMMENDATION: All structures must be equipped with security features that will prevent unauthorized use of the structures. The security features should be substantial in design and include securing the structure and the equipment, especially the belay ropes (i.e., fencing, locked doors, or any other device used to control access).

It is recommended that indoor structures do not exceed twenty-four (24) feet in height, measured from the floor. Although new buildings may be taller, there is not any additional benefit to installing a structure in excess of this height. Maximum width of a vertical climbing structure should not exceed sixteen (16) feet.

If the climbing structure is to be used as a traverse only wall (only horizontal climbing), the recommended height should not exceed eight (8) feet. No horizontal width is recommended.

RECOMMENDATION: A design for all climbing structures which allows for the removal of hand and foot holds from the structure is preferred. This feature allows for the inspection and replacement of hand and foot holds, and facilitates realignment of the climbing course. Removable hand and foot holds are also a security feature, preventing unauthorized use.

II. DESIGN (Cont.)

RECOMMENDATION: The use of adhesives is not recommended to attach the holds directly to an existing wall. Several reasons adhesives are not recommended are:

1. The surface should be applied to untreated materials. Paints, lacquers and other products are a "seal" and they reduce the ability of the adhesive to adhere the two surfaces.
2. A hold that has been glued to a wall can only be inspected from the outer perimeter of the hold. It is impossible to detect flaws, cracks and deterioration of adhesive on the remaining hold due to the remainder of the surface being inaccessible.
3. Holds that are glued to a wall cannot be easily removed. If removal is necessary, there is potential for significant damage to the holds and to the surface. This can be a problem if the removal causes damage to a concrete block (load bearing) wall.
4. Holds that are glued to the wall cannot be reconfigured to different patterns, to increase/decrease the degree of difficulty of the wall.
5. With few exceptions, adhesives are used to supplement mechanical means of bonding materials together. For example, the plywood flooring in a residential dwelling is both glued and nailed/screwed to the floor joists. Using both the adhesive and mechanical devices increases the durability of the structure, and reduces the chances that the floor will "squeak". This is especially true where a floor will be inaccessible after the sheetrock has been installed.
6. Certain climatic conditions may cause adhesives to prematurely dry out and reduce their effectiveness and adhesion capabilities. Since inspection is impossible, the adhesive can dry-out and create a hazard that cannot be seen or otherwise detected.

III. CONSTRUCTION/INSTALLATION

After the plans for the structure have been approved, the next step in the process is the installation of the structure.

RECOMMENDATION: The installation of the structure should be performed by a qualified state licensed general contractor. Advantages to utilizing the contractor include:

Warranty, replacement, and/or repair of the structure, or its components, as necessary.

Reduction in worker compensation loss exposure (as opposed to SU/SD employees performing the installation).

Qualified contractors will have knowledge of standard building practices and proper tools and equipment to complete the installation.

Contractors must carry comprehensive general liability, workers' compensation and other insurance coverages to reduce the SU/SD's loss exposure. Please contact the VSBIT Multi-line Program for assistance with insurance requirements.

The SU/SD's Safety and Maintenance personnel should be included in the entire process. The SU/SD's Planning and Engineering and/or Maintenance departments should review the design and oversee the construction of the structure.

IV. MAINTENANCE

Maintenance of the structure is vital to assure that the structure is safe. Regular and periodic maintenance should be viewed as a preventive method and program of identifying any defective or worn parts and to ensure the structure is safe and remains securely fastened to its building's wall.

RECOMMENDATION: A maintenance program is necessary to assure long term safe use of the structure. The maintenance program should include a checklist of items that need to be inspected, as well as the frequency of the inspection and who inspected the items. A system of written documentation is necessary to support the actual inspection process (see appendix A).

RECOMMENDATION: If the structure is installed by a contractor, the contractor may also be asked to provide a maintenance schedule. If the contractor does not provide a maintenance schedule, it is then recommended that the frequency of inspections be performed monthly. The first inspection should be performed after the first ten (10) hours of use.

Frequency of inspection may also be performed by hours of use. After the initial inspection at ten (10) hours, periodic inspections after every twenty-five (25) hours of use are recommended. The inspections should be documented by whoever performs the inspection.

The person assigned the task of inspections must have knowledge and training on the equipment and the procedures for inspection.

NOTE: These inspections are in addition to the daily inspection that must be performed by the classroom instructor prior to the use of the wall (see Appendix D).

The maintenance program should inspect all items associated with the structure, including the devices used to support the belay lines. A separate maintenance log sheet should be utilized for the equipment, i.e., ropes, harnesses, etc. (Please see section on equipment.) Length of time that each rope has been in service should also be logged.

Retention of Records: The Program recommends retaining records regarding inspection and repair of the structure as long as the wall is in service. If the wall has been retired or replaced, records should be maintained for a minimum of two (2) years.

V. EQUIPMENT

The selection and purchase of equipment is a very important step in the process. Once a particular manufacturer or supplier has been selected to furnish the equipment, the manufacturer or supplier should be included in the process to provide specific use and maintenance information. Equipment includes all items that are not a part of the climbing structure or belay supports.

Equipment used should be approved by organizations such as the UIAA (Union Internationale Des Associations D'alpinisme), the CE (Community European Norm) or the ASTM.

RECOMMENDATION: All equipment must be inspected and used according to the manufacturer or suppliers recommendations. **If the supplier does not furnish this information, an alternative supplier should be selected.** A system of written documentation is also necessary to document the actual physical inspection of equipment.

RECOMMENDATION: The name and address of all equipment manufacturers and suppliers must be retained on file for the life of the equipment. If an injury occurs, this information should be kept as a permanent record (see Appendix B).

Records of equipment that has been purchased, used and retired from service must be retained for a minimum of two (2) years after the equipment has been replaced.

RECOMMENDATION: The supplier of the equipment should be asked to provide any training that may be necessary for the instructor(s) as to the proper use of the equipment, and the proper methods of inspection of the equipment, as well as the recommended frequency of inspections.

GENERAL SAFETY EQUIPMENT:

- Helmets should be required
- Harnesses (size appropriate for small children)
- First Aid Kit readily available
- Form of communication to make contact in case of emergency
- List of emergency contact numbers
- Fall arrest system as per the ACCT, to limit the free fall distance to no more than six (6) feet.
- Protective mats
- Form of emergency rescue at appropriate heights

Your SU/SD's Purchasing Department may have a procedure or a particular supplier for this equipment. Consult this department before purchasing, or share company names with them for future projects.

VI. ACTIVITIES

RECOMMENDATION: Prior to any individual being allowed to participate in adventure-based activities, the proper permission slips, waivers and releases must be returned to the classroom instructor(s). Conduct an initial consultation with participants and guardians reviewing the activity and the dangers associated with it. Provide **verbal and written** information in addition to the opportunity to ask questions and to decide on participation. Copies of these documents should be on file at the appropriate SU/SD Office. The original document should be kept as a permanent record for a period of twelve (12) months after the end of the class or event (see Appendix C).

RECOMMENDATION: Daily inspections of the structure and climbing equipment must be performed and documented by the event instructor/teacher prior to the activity (see Appendix D).

RECOMMENDATION: All activities that will be performed on the structure should be reviewed and included in a syllabus format document prepared by the classroom instructor. The document should be reviewed by SU/SD personnel, (i.e., building administrators, SU/SD Risk Manager, Safety Committee), to ensure that specific activities are appropriate: for example, age, size, instructor qualifications, degree of difficulty, safety regulations, etc.

RECOMMENDATION: All classroom instructors are encouraged to attend professional development training and education programs, specifically to improve skills and understanding of the adventure philosophy, program maintenance, and safety.

RECOMMENDATION: Prepare and train for medical emergencies. Take into account the need for an emergency rescue.

INSTRUCTOR QUALIFICATIONS: Unfortunately, there is no mandated standard for these activities, but several groups have set their own criteria, which may assist in setting your own standards. Please see the following information:

Boy Scouts of America

Climb On Safely, A Guide to Unit Climbing and Rappelling

www.scouting.org/boyscouts/resources/20-099/index.html

Qualified Supervisor: at least 21 years old who understands the risks inherent to these activities. Responsible for ensuring that someone in the group is currently certified in American Red Cross Standard First Aid and CPR (or equivalent).

Qualified Instructor: at least 21 years of age and has successfully completed a minimum of 10 hours of instructor training for climbing/rappelling from a nationally or regionally recognized organization, a climbing school, or a college-level climbing /rappelling course.

VI. ACTIVITIES (Cont.)

**North Carolina State University
Department of Physical Education
Raleigh, North Carolina**

Safety Policies and Procedures Manual, The Fauxrock Climbing Facility
Fall 1995

Climbing Supervisor Minimum Requirements:

18 years age minimum

Experienced climbers having at least two years climbing experience and/or formal training in technical rock climbing

Trained in first aid and CPR through the standard Red Cross First aid course or equivalent

Information also requested on the staff application:

Climbing experience

Teaching experience

Specialized training

Certifications

First Aid certifications

Three references

Current resume

STUDENT/INSTRUCTOR RATIOS:

BSA: 1-10 Students/ 2 adult supervisors

11-20 students/ 3 adult supervisors

21-30 students/ 4 adult supervisors

Journal of Physical Education Recreation and Dance (JOPERD): 6 participants to one instructor

Telluride Public Schools: 6/1 in ropes course and bouldering activities

8/1 top rope climbing and rappelling

Sample forms are attached for your use in developing your SU/SD's forms. We recommend you provide a copy to your SU/SD's legal counsel for approval prior to use after you develop your SU/SD's form (see Appendix C).

REFERENCES AND OTHER SOURCES OF INFORMATION

The Association for Challenge Course Technology (ACCT)

Challenge Course Standards

April 1999

P.O. Box 255 Martin, Michigan 49070-0255

Phone: 616-685-0670

www.acctinfo.org

The Outdoor Recreation Coalition of America (ORCA) is a trade association for the outdoor industry. The Climbing Wall Industry Group (CWIG) is a subgroup of ORCA. CWIG, formed in 1993, promotes safety of the climbing public through education, testing, research and establishing standards for the industry. *Specifications for Manufactured Climbing Walls*, also known as the CWIG standards, were published in 1993. These specifications cover two aspects of design: Determination of Live Loads and Structural Requirements for Anchor Points. The specifications were meant to supplement established design, engineering and construction practices and standards such as the Uniform Building Code, Uniform Fire Code, American Plywood Association and the American Society of Testing Materials (ASTM).

The *Specifications for Manufactured Climbing Walls* were submitted in 1997 to the ASTM to begin the process, which will produce a standard formally recognized within the climbing wall industry. These standards would be voluntary, but nationally recognized and readily available.

You can reach CWIG through ORCA.

Outdoor Recreation Coalition of America

P.O. Box 1319

Boulder, CO 80306

Web site: www.orca.org

Email: infor@orca.org

Phone: 303-444-3353

American Society for Testing Materials

100 Barr Harbor Drive

West Conshohocken, PA 19428

Phone: 610-832-9500

INSPECTION/MAINTENANCE LOG

Date _____

Structure(s) _____ Name of Inspector _____

Panels: Cracked (not at joint) _____ Bowed or Warped _____

Missing _____ Other damage _____

Mounting Hardware: Loose _____ Bolt/nut/washer/screw missing _____

Surface: Dirty _____ Vandalized _____ Cracks (not at joint) _____

Other _____

Holds: Loose _____ Damaged _____ Missing _____

Other _____

Belay Support: Bolts tight?	Yes	No
-----------------------------	-----	----

Straps inspected?	Yes	No
-------------------	-----	----

Carabiner or other device inspected?	Yes	No
--------------------------------------	-----	----

Maintenance/lubrication needed?	Yes	No
---------------------------------	-----	----

Other:

Signature: _____ Date: _____

EQUIPMENT FILE INFORMATION

Equipment _____

Date of Purchase _____

Date Equipment in-service _____

Date Equipment should be removed from service _____

Manufacturer's Recommended Service (procedures and intervals) _____

Manufacturer's Recommended Maintenance (procedures and intervals)

Manufacturer's Recommended Procedures or Usage _____

Manufacturer/Supplier _____

Warranty Information _____

Other _____

**EMERGENCY INFORMATION FORM
STAFF**

Name _____ Birthdate _____ Age _____

Address _____ City _____ ZIP _____

Home Phone _____

Emergency Contact _____

Emergency Contact Phone _____ Relationship _____

Family Doctor _____ Phone _____

Preferred Hospital _____

Known allergies and other medical concerns _____

The Climbing Wall Facilitators may apply first-aid treatment until professional medical personnel can be contacted and I give consent for facilitators to use their own judgment in securing medical aid and ambulance services in case we cannot be reached. Yes _____ No _____

You must carry Family Medical/Hospital Insurance in order to participate:

Carrier _____

Policy or Group # _____

Subscriber Name _____

Participant's Name (Please Print)

Participant's Signature

Date

**EMERGENCY INFORMATION FORM
ADULT PARTICIPATION**

Name _____ Birthdate _____ Age _____

Address _____ City _____ ZIP _____

Home Phone _____

Emergency Contact _____

Emergency Contact Phone _____ Relationship _____

Family Doctor _____ Phone _____

Preferred Hospital _____

Known allergies and other medical concerns _____

The Climbing Wall Facilitators may apply first-aid treatment until professional medical personnel can be contacted and I give consent for facilitators to use their own judgment in securing medical aid and ambulance services in case we cannot be reached. Yes _____ No _____

You must carry Family Medical/Hospital Insurance in order to participate:

Carrier _____

Policy or Group # _____

Subscriber Name _____

Participant's Name (Please Print)

Participant's Signature

Date

**EMERGENCY INFORMATION FORM
STUDENT PARTICIPATION**

Name _____ Birthdate _____ Age _____

Parent's Name _____ Home Phone _____

Address _____ City _____ ZIP _____

Phone # of Parent _____

Emergency Contact, if parents cannot be reached _____

Emergency Contact Phone _____ Relationship _____

Family Doctor _____ Phone _____

Preferred Hospital _____

Known allergies and other medical concerns _____

The Climbing Wall Facilitators may apply first-aid treatment until professional medical personnel can be contacted and I give consent for facilitators to use their own judgment in securing medical aid and ambulance services in case we cannot be reached. Yes _____ No _____

You must carry Family Medical/Hospital Insurance in order to participate:

Carrier _____

Policy or Group # _____

Subscriber Name _____

Participant's Name (Please Print)

Participant's Signature

Date

**CLIMBING WALL RELEASE, ACKNOWLEDGMENT OF RISK, ASSUMPTION
OF PERSONAL RESPONSIBILITY AND INDEMNITY STAFF**

I understand that during my participation in Climbing Wall activities, I may be exposed to risk of possible injury, which could be serious.

I understand, too, that it is not possible for the School, its employees, or agents, to guarantee or otherwise assure the effectiveness of the safety measures, or that the safety measures will be used in every instance. I further understand that mistakes, errors or neglectful acts or omissions may happen and that equipment may fail. Also, I understand that I assume the risk for any injuries or damages resulting from my participation in these activities.

I have accepted responsibility to verify with my physician that I have no physical or psychological problems that would prohibit my participation in these activities, and agree to comply with the instructions and directions of School staff members during my participation in the Climbing Wall activities.

I _____ in return for my opportunity to participate in the Climbing Wall activities, which includes the use of equipment, do hereby exempt and release the School District/Supervisory Union, its directors, officers, employees, volunteers and agents, from any and all liability, claims, demands or actions whatsoever arising out of any damage, loss or injury that my child or I might sustain while I am participating in Climbing Wall Activities, whether or not such damage, loss or injury results from the negligence of the School District/Supervisory Union, its directors, officers, employees, volunteers or agents, or any defective equipment. I also understand that if I do not sign this RELEASE then I will not be permitted to participate in the Climbing Wall activities. I hereby represent that I am 18 years of age or older.

I further acknowledge that no representations or promises by School District/Supervisory Union representatives have been made to induce me to sign this Release, and that I have read the Climbing Wall information, in which the elements of the course have been described. I further agree to indemnify, hold harmless and defend the School District/Supervisory Union from any claim, cause of action or demand, of any sort or nature which may at any time be filed or asserted arising out of and in connection with my participation in the Climbing Wall activities, which indemnification shall include any costs and attorney's fees that may be incurred by the School District/Supervisory Union as a result of any claims, causes of action or demands.

Participant's Name (Please Print)

Participant's Signature

Date

CLIMBING WALL RELEASE, ACKNOWLEDGMENT OF RISK, ASSUMPTION OF PERSONAL RESPONSIBILITY AND INDEMNITY ADULT PARTICIPATION

I understand that during my participation in Climbing Wall activities, I may be exposed to risk of possible injury, which could be serious.

I understand, too, that it is not possible for the School, its employees, or agents, to guarantee or otherwise assure the effectiveness of the safety measures, or that the safety measures will be used in every instance. I further understand that mistakes, errors or neglectful acts or Omissions may happen and that equipment may fail. Also, I understand that I assume the risk for any injuries or damages resulting from my participation in these activities

I have accepted responsibility to verify with my physician that I have no physical or psychological problems that would prohibit my participation in these activities, and agree to comply with the instructions and directions of the School's staff members during my participation in the Climbing Wall activities.

I _____ in return for my opportunity to participate in the Climbing Wall activities, which includes the use of equipment, do hereby exempt and release the School District/Supervisory Union, its directors, officers, employees, volunteers and agents, from any and all liability, claims, demands or actions whatsoever arising out of any damage, loss or injury that my child or I might sustain while I am participating in Climbing Wall Activities, whether or not such damage, loss or injury results from the negligence of the School District/Supervisory Union, its directors, officers, employees, volunteers or agents, or any defective equipment. I also understand that if I do not sign this RELEASE then I will not be permitted to participate in the Climbing Wall activities. I hereby represent that I am 18 years of age or older.

I further acknowledge that no representations or promises by School District/Supervisory Union, representatives have been made to induce me to sign this Release, and that I have read the Climbing Wall information in which the elements of the course have been described. I further agree to indemnify, hold harmless and defend the School District/Supervisory Union, from any claim, cause of action or demand, of any sort or nature which may at any time be filed or asserted arising out of and in connection with my participation in the Climbing Wall activities, which indemnification shall include any costs and attorney's fees that may be incurred by the School District/Supervisory Union, as result of any claims, causes of action or demands.

Participant's Name (Please Print)

Participant's Signature

Date

APPENDIX C.6

**CLIMBING WALL RELEASE, ACKNOWLEDGMENT OF RISK, ASSUMPTION
OF PERSONAL RESPONSIBILITY AND INDEMNITY**

STUDENT PARTICIPATION

I/we understand that during my child's participation in Climbing Wall activities, he/she may be exposed to risk of possible injury, which could be serious.

I/we understand, too, that it is not possible for the school, its employees, or agents, to guarantee or otherwise ensure the effectiveness of the safety measures, or that the safety measures will be used in every instance. I further understand that mistakes, errors or omissions may happen and that equipment may fail. Also, I/we understand that I/we assume the risk for any injuries or damages resulting from my child's participation in Climbing Wall activities.

I/we have accepted responsibility to verify with my physician that my child has no physical or psychological problems that would prohibit his/her participation in club activities, and agree to advise my child to comply with the instruction and directions of the school staff members during their participation in Climbing Wall activities.

I/we _____ (Parent/Guardian), in return for my child's opportunity to participate in the Climbing Wall activities, which includes the use of equipment, do hereby exempt and release the School District/Supervisory Union, its directors, officers, employees, volunteers and agents, from any and all liability, claims, demands or actions whatsoever arising out of any damage, loss or injury that my child or I/we might sustain while my child is participating in Climbing Wall activities, whether or not such damage, loss or injury results from the acts or omissions of the School District/Supervisory Union, its directors, officers, employees, volunteers or agents, or any defective equipment. I/we understand that if I/we do not sign this Release, then my child will not be permitted to participate in Climbing Wall activities. I/we hereby represent that I am/ we are 18 years of age or older, and that I am/we are the parent(s)/guardians of _____ (Student).

I/we further acknowledge that no representations or promises by School District/Supervisory Union, representatives have been made to induce me to sign this release, and that I/we have read the Climbing Wall information in which the activities of the program have been described.

I/we _____ (Parent/Guardian), further agree to indemnify, hold harmless and defend the School District/Supervisory Union, from any claim, cause of action or demand, of any sort or nature, which may at any time be filed or asserted by _____ (Student), or on his or her behalf, arising out of and in connection with their participation in Climbing Wall activities, which indemnification shall include any costs and attorneys' fees that may be incurred by the School District/Supervisory Union, as result of any claims, causes of action or demands.

Participant's Name (Please Print)

Participant's Signature

Parent/Guardian Name (Please Print)

Parent/Guardian's Signature

Date _____

SAMPLE INSPECTION/CHECKLIST SYSTEM

HIGH ROPES COURSE INSPECTION LOG AND CHECKLIST

Date _____ Facilitators _____

Class _____ # of Participants _____

Post-Course Check _____ Pre-Course Check _____ Participant Orientation Check _____

Signature: _____ Date: _____

Incidents: How many and on what elements?

Emotional _____

Injuries _____

Rescue(s) _____

Equipment Malfunction _____

Post-Course Check: Items used for the ropes course must be inventoried before the group departs. Below is a list of sample elements and requirements for the checklist. Your School District/Supervisory Union, will need to modify to meet special element needs.

- _____ Access elements tied up and out of reach
- _____ Dangle Duo bottom rung removed and stored
- _____ AC/DC rope raised and tied off
- _____ Store rescue ladder
- _____ Cargo net raised to ceiling
- _____ Rappel ropes raised to platforms
- _____ Centipede bottom piece removed and stored
- _____ Centipede retracted to wall
- _____ Giant swing cable secure
- _____ Flying squirrel rope removed and stored
- _____ Pamper Pole placed in storage
- _____ Ropes equipment and site inspected and cleared
- _____ Fill out Course Inspection Log and Checklist
- _____ Complete Pre and Post Use Inventory
- _____ Complete Rope Use Log

SAMPLE INSPECTION/CHECKLIST SYSTEM PRE-COURSE CHECKLIST

GROUND SET-UP

- _____ Cordon off under the High Ropes Course; place First Aid Kit in designated area
- _____ Review previous log
- _____ Inspect belay ropes (check for fraying, breakage and wear)
- _____ Inspect rescue rope (check for fraying, breakage and wear)
- _____ Inspect all hardware (belay devices, carabiners) for dents, wear, corrosion, dirt
- _____ Inspect harnesses (stitching, frays, wear, and discoloration)
- _____ Inspect Y-Tails (check for frays/tears; check knots and splice; 2 steel carabiners)
- _____ Inspect helmets (check for frays and/or cracks)
- _____ Set-up rescue equipment [*see Rescue Bag Set-up*]
- _____ Inspect co-facilitators safety equipment
- _____ Lower all access ladders that will be used
- _____ Set up rescue ladder
- _____ Set up ground school
- _____ Thread all belay lines for course access. (Store lazy lines in equipment room)
- _____ Tie knots and attach belay devices
- _____ Organize harnesses, helmets, Y-tails, and carabiners
- _____ Lower Dangling Duo and secure the bottom rung
- _____ Set up AC/DC lines
- _____ Lower centipede and attach lower segment
- _____ Lower giant swing cable

TOP SET-UP AND INSPECTION

- _____ Check bolts, connections, and platforms (for looseness and wear)
- _____ Inspect all cables and attachments
- _____ Set-up belay system on the top course
- _____ Attach Emergency Take-Down Bag to designated location

GROUND BELAY SET-UP

- _____ Thread belay rope through tuber
- _____ Tie a Figure-8 on a bight to the climbing end of the belay rope
- _____ Tie a Figure-8 stopper knot on the standing end of the belay rope

SAMPLE INSPECTION/CHECKLIST SYSTEM

PARTICIPANT ORIENTATION AND COURSE TOUR CHECKLIST

- _____ Check all participant waivers for emergency information and signature.
- _____ Identify access and exit points [marked with an asterisk *].
- _____ Briefly identify the elements the participants will use:

AC/DC	Etrier Crossing
Traverse Wall	Earthquake Tremor
Bottomless Burma Bridge	Firecracker Ladder *
Cargo Net	Floating Beam
Cave Ladder	Flying Squirrel
Centipede	Hour Glass
Commando Crawl	Pamper Pole
Dangling Duo	Rope Ladder
Knotted Rope *	Jumar Ascent Rope
Rappel Station	Giant Swing
- _____ Identify the overhead belay cable. You must be clipped into a safety system at all times the course.
- _____ Briefly explain *assists* and *take-down* procedures for emergencies.
- _____ Discuss the following safety concepts
 - _____ Safety is the #1 priority. Nothing justifies getting hurt physically or emotionally. All group members are responsible for safety. Proceed in a controlled and orderly manner.
 - _____ Only two people on an element at any time.
 - _____ Maximum of four (4) people per platform at all times.
 - _____ No *test falls*.
- _____ Discuss:
 - _____ The Ropes Course is a non-competitive group-oriented activity.
 - _____ All individual choices will be respected and supported [*challenge by choice*].
 - _____ Debrief/Linking: The course can be physically and emotionally challenging, and offers an opportunity for personal growth.
 - _____ Do not step on the rope (dirt will cut or weaken fibers).
- _____ Do warm-up activities: e.g., stretches to limber and warm-up muscles.
- _____ Select partners and discuss goals and objectives.
- _____ Put on harnesses [see *Harness Instructions*].
- _____ Waist cinched tightly [less than two fingers can fit between harness and waist].
- _____ Waist webbing rests on the hip bone [not below hip bone].
- _____ Double-back webbing over buckle [functions as a lock].
- _____ Tighten leg loops [comfortably snug].
- _____ Two (2) facilitators should check each participant to ensure that the harness is on correctly.
- _____ Attach Y-tails to harness belay loop [use a girth hitch with the knot out of the bight].
- _____ Helmets: secure on head [less than two fingers from the eyebrow line].
- _____ Teach Transfer Commands & how to clip into the overhead safety cable [see *Transfers*].
- _____ Teach Belay Commands [see *Belay Commands*].

SAMPLE INSPECTION/CHECKLIST SYSTEM

TRANSFERS AND BELAY COMMANDS CHECKLIST

Transfers

- _____ You must be clipped into a safety system at all times when you are on the course. [Demonstrate the clip-in procedure.]
- _____ Hands on only one clip-in device at a time [prevents accidental removal of both clip-in devices].
- _____ A facilitator must observe every transfer. Use the facilitator's name when asking for a transfer. It is critical to use standard terminology [it is clear and eliminates confusion].
- Participant Name, Will you watch me transfer?
- Facilitator Name, I'm watching

- Participant Name, Transfer #1?
- Facilitator Name, Transfer #1

- Participant Name, Transfer #2?
- Facilitator Name, Transfer #2

- Participant Name, Check one and two?
- Facilitator Name, Checked. You may proceed
- _____ STOP means freeze and correct.
- _____ Practice everything that can go wrong: permission, wait for response, attaching clip-in to wrong cable, moving both clip-in devices at once.

Belay Commands (used when leaving ground level):

- | | | |
|----------------|---|-------------------|
| <i>Climber</i> | when clipped in..... | Name, On Belay |
| <i>Belayer</i> | when slack is in | Name, Belay Is On |
| <i>Climber</i> | when ready to climb | Climbing |
| <i>Belayer</i> | tells climber | Climb On |
| <i>Climber</i> | if rope is too tight | Name, Slack |
| <i>Belayer</i> | gives a maximum of six (6) inches of rope to each command until climber is satisfied. | |
| <i>Climber</i> | if rope is too loose..... | Name, Up Rope |
| <i>Belayer</i> | takes up slack | |
| <i>Climber</i> | if falling during the climb..... | Falling |
| <i>Belayer</i> | assumes brake position to arrest the fall | |
| <i>Climber</i> | when safely on ground or connected by static belay | Name, Off Belay |
| <i>Belayer</i> | lets go of rope..... | Name, Belay Off |
| <i>Climber</i> | thanks belayer for keeping him/her safe | |

Signature: _____ Date: _____

**SAMPLE INSPECTION/CHECKLIST SYSTEM
HARNESS AND Y-TAILS INSTRUCTIONS**

Scat Harness

- _____ Step through leg loops.
- _____ Make sure leg loops are relatively loose at the thigh area.
- _____ The webbing must rest on the hip bone (not below the hip bone).
- _____ Tighten webbing at the waist (maximum of 2 fingers should be able to fit between the webbing and waist).
- _____ Tighten webbing around the thighs (comfortably snug).
- _____ Tuck-in the excess webbing.

Note: Putting on the harness is easier if the waist and leg webbing is drawn out to the maximum before the participants get the harness (do this as part of the pre-course set-up).

Body Harness

Follow manufacturer's instructions.

Y-Tails

- _____ Slip the bight into the harness belay loop.
- _____ Thread the clip-ends into the bight to form a girth hitch.

Prusik Knot Management

- _____ Keep slack out of the y-tails by pushing up on the prusik knot (too much slack makes it dangerous if someone slips off the element).
- _____ Maintain uneven length on the y-tails (to avoid getting head caught between them).

Signature: _____ Date: _____

SAMPLE INSPECTION/CHECKLIST SYSTEM PRE- AND POST-USE INVENTORY

Ropes Course equipment must be checked-out and inventoried at the end of the course, before the group departs. Document any items that need to be repaired or removed from service.

Item	Quantity	Checked In	Checked Out
Y-tails	_____		
Steel Carabiners	_____		
Helmets	_____		
Seat Harness	_____		
Body Harness	_____		
First Aid Kit	_____		
Emergency Take-Down Kit	-	_____	_____
Tubers	-	_____	_____
Rope	-	_____	_____
Locking Carabiners	-	_____	_____

What's missing? _____

Maintenance performed _____

Maintenance needed _____

Equipment replaced _____

Equipment needed _____

Facilitators _____

Date _____

Notes _____

Signature: _____ Date: _____

SAMPLE INSPECTION/CHECKLIST SYSTEM ROPE USE LOG

1. Rope use must be recorded after every program.
2. Ropes should be color coded and tracked according to specific use.
3. Ropes will be washed (when necessary) in a standard washing machine with mild soap (2-3 drops of Ivory). Hand rope to dry (do not store wet rope).

Rope Code _____ Specific Use Area _____ In Service Date _____

Date	Group	Pre- Check	Post- Check	Units of Use	# of Falls	Signature
------	-------	---------------	----------------	-----------------	---------------	-----------

SAMPLE INSPECTION/CHECKLIST SYSTEM

ASSIST AND EMERGENCY TAKE-DOWN PROCEDURES

The necessity of a Ropes Course *assist* or *emergency take-down* is greatly minimized if the facilitator conducts the *Ropes Course Group Orientation* activities. If a participant is having non-medical problems (e.g., anxiety, fear, fatigue) and appears unable to complete the course, survey the participant's situation and condition. If the participant is cooperating and coherent, follow these guidelines for an *assisted take-down*:

Assisted Take-down

1. Self Help
Reassure the person that s/he is physically safe. Point out the safety system and the Y-tails. Try to talk the participant through the element. The participant will feel more confident if s/he can complete the element by herself/himself. Encourage the participant with the following suggestions:
 - a. Use deep, slow breathing.
 - b. Shake out arms and legs.
 - c. Encourage the person to drink some water.
 - d. Find out how the participant reacts in other situations of stress and difficulty.
 - e. Ask the participant to make a commitment to continue.
2. Partner Help
Ask the person's partner to help him/her continue.
3. Facilitator Help
Walk out to the participant and try to calm her/him. Finish the element as the participant's partner. Continually reassure the participant.

If a participant refuses to move or is experiencing shortness of breath, pain, or any medical emergency, begin *Emergency Take Down* procedures immediately. Remain calm and move quickly.

SAMPLE INSPECTION/CHECKLIST SYSTEM

EMERGENCY TAKE-DOWN PROCEDURES AND CHECKLIST

Ground Facilitator

- _____ Alert 911, if the *take-down* is a medical emergency.
- _____ *Rescue ladder*: If the person is conscious and able, move the *rescue ladder* under the participant's feet (for support). The person can be belayed down the ladder. [Do not use the rescue ladder if the person is unconscious or unable to move.]
- _____ Instruct all other participants to move to the nearest platform, remain clipped in, and in place until given permission to move.

Top Facilitator

Talk to the participant in a quiet, calm voice. Make sure s/he is breathing regularly.

Ask him/her to *shake-out* arms and legs so they don't get numb.

- _____ Move Rescue Bag to the participant's element.
- _____ Attach the *steel locking carabiner* of the rescue belay rope to the overhead belay cable (lock down).
- _____ Move to the participant. Drop the *Rescue Rope* (yell "ROPE" before dropping the rope to the ground).
- _____ Attach *locking carabiner* to participant's harness belay loop (enter loop from top to down). The carabiner gate must face away from the person's body. LOCK the carabiner.
- _____ *Ground Facilitator*: Set-up a *body belay* with a back-up belayer, then stand at a 45" angle to the participant's cable. Take-up slack in rope (this removes the weight from the participant's Y-tail).
- _____ The following commands MUST be called before the Y-tail is cut or unclipped.

Top Facilitator: ON BELAY?

Ground Facilitator: BELAY ON

Ground Facilitator must ask *Top Facilitator* to recheck:

- _____ connection and lock on participant's harness carabiner
- _____ lock on the steel carabiner on the cable

Ground Facilitator must recheck:

- _____ carabiner on stitch plate is properly connected and locked
- _____ rope is not tangled

Top Facilitator: CUTTING? (releasing)

Ground Facilitator: CUT (release)

- _____ *Top Facilitator* cuts or unhooks the Y-tails so participant can be lowered. If the person is conscious and cooperating, unhook the Y-tails (they do not need to be cut).
- _____ *Ground Facilitator* belays participant down slowly.
- _____ Proceed with First Aid (if necessary).

Signature: _____ Date: _____

**SAMPLE INSPECTION/CHECKLIST SYSTEM
EMERGENCY TAKE-DOWN BAG SETUP**

Bag Contents

- | | |
|--------------------------------------|--------------------------------------|
| _____ Rescue rope | _____ Rescue-8 |
| _____ Steel carabiner (for harness) | _____ Steel carabiner (for Rescue-8) |
| _____ Scissors on aluminum carabiner | _____ Steel oval carabiner (carrier) |

Setup Instructions

- _____ Tie Figure-8 follow-through knot on a bight with a double fisherman's knot on working end of rope.
- _____ Tie figure-8 stopper knot on the standing end of rope.
- _____ Stack the rope into the backpack (start with the standing end of the rope).
- _____ Attach the steel carabiner to the Figure-8 loop (this carabiner that hooks into the participant's harness).
- _____ Slip the rope through the Rescue-8.
- _____ Attach the D carabiner to the Rescue-8.
- _____ Hook the D carabiner (of the rescue rope) to the outside loop on backpack.
- _____ Hook scissors (on the oval aluminum carabiner) to the outside loop on backpack.
- _____ Hook the oval steel carabiner to the loop on backpack (this carabiner is hooked onto the cable to transport the backpack to the rescue site).
- _____ Tuck everything (but the transport oval carabiner) into the top of the bag and close the bag.

To TRANSPORT RESCUE EQUIPMENT to the rescue site:

- _____ Attach the transport carabiner between your Y-tails carabiners on the cable
- or
- _____ Place the pack on your back

Signature: _____ Date: _____