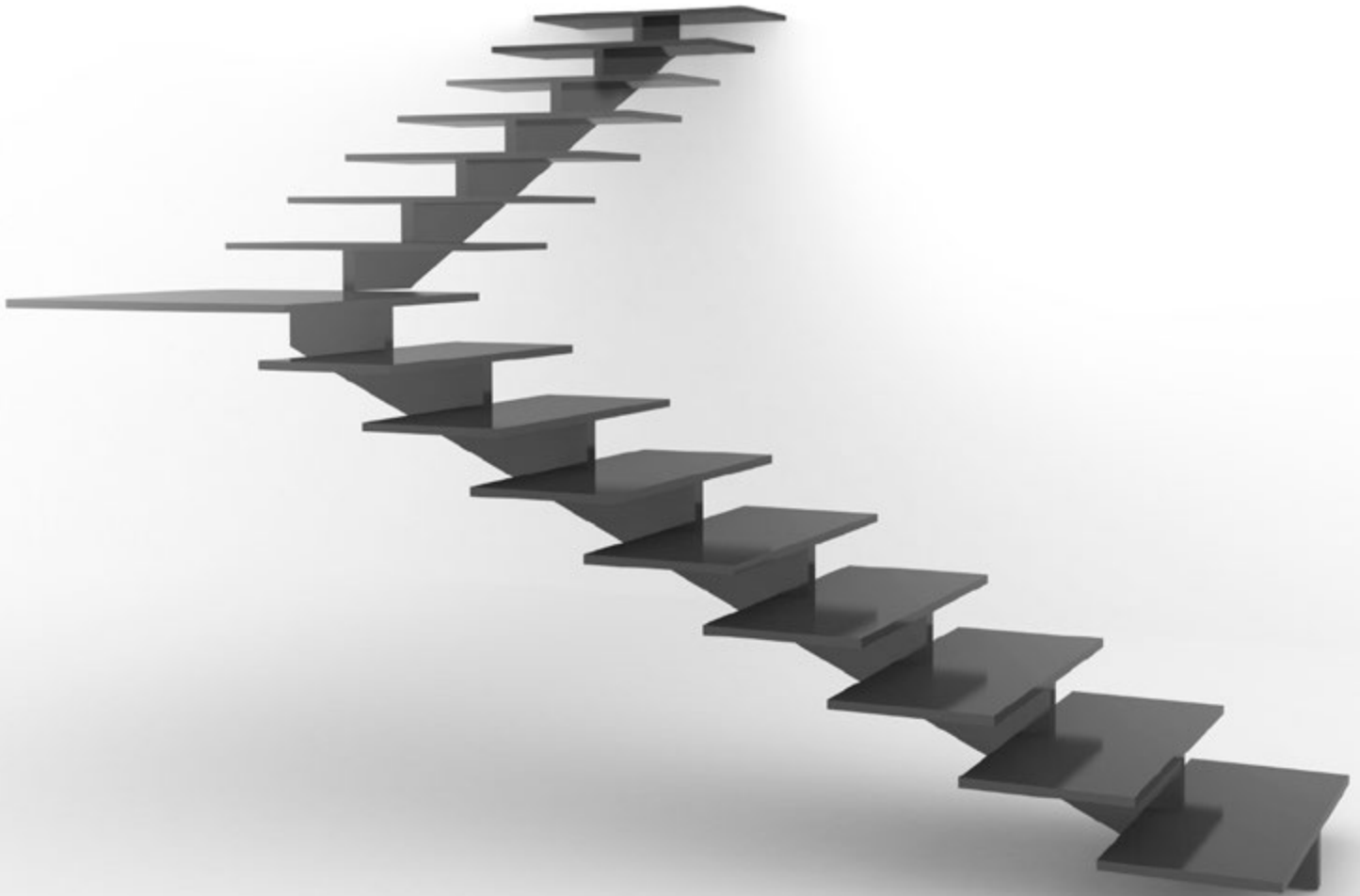


A P U B L I C A T I O N O F T H E W E L L N E S S C O U N C I L O F A M E R I C A

# StairWELL *to* Health

How The Centers For Disease Control And Prevention  
Rejuvenated Stairwells To Increase Physical Activity



# StairWELL *to* Health

How The Centers For Disease Control And Prevention  
Rejuvenated Stairwells To Increase Physical Activity



## ABOUT **DR. DAVID HUNNICUTT**



Since his arrival at WELCOA in 1995, David has interviewed hundreds of the most influential business and health leaders in America. Known for his ability to make complex issues easier to understand, David has a proven track record of asking the right questions and getting straight answers. As a result of his efforts, David's expert interviews have been widely-published and read by workplace wellness practitioners across the country.

David Hunnicutt can be reached at [dhunnicutt@welcoa.org](mailto:dhunnicutt@welcoa.org).

**T**aking the stairs is one way to be more physically active. At work, employees are often presented with a choice between taking the stairs and taking an elevator or escalator. Choosing the stairs instead of the elevator is a quick way for people to add physical activity to their day.

Using the stairs requires little additional time, no wardrobe change, and few additional costs because building code requires stairs. If your building has a staircase, why not start using it now?

## Here's How CDC Initiated A Stairwell Program

One of the reasons employees may not use the stairs at work is because they perceive them as unattractive and/or unsafe. CDC's Division of Nutrition and Physical Activity conducted a study beginning in 1998 to see if making physical changes to a stairwell in the Atlanta-based Koger Center Rhodes Building, combined with music and motivational signs would motivate employees to use the stairs. A four-stage passive intervention was implemented over 3 ½ years that included painting and carpeting, framed artwork, motivational signs, and music. Infrared beams were used to track the number of stair users. "StairWELL to Better Health" was a low-cost intervention (less than \$16,000\*), and the data suggest that physical improvements, motivational signs, and music can increase stairwell use among building occupants.\*\*

From their efforts, the Staff at the CDC have made available the information you need to transform your stairs into StairWELLS for better health.

The following topics are addressed in this article:

- ▶ Improving the Visual Appeal of Your Stairwells
- ▶ Creating and Testing Motivational Signs
- ▶ Installing Music
- ▶ Other Ideas to Consider
- ▶ Tracking Stair Usage
- ▶ Project Checklist
- ▶ Related Resources

## Section 1: Stairwell Appearance

Taking the stairs is a great way to increase your daily physical activity. But let's face it—if you must decide between riding to the 5th floor in a carpeted, well-lit elevator (which requires no effort) versus walking up flights of stairs surrounded by stark gray walls and concrete floors, which would you choose? An important motivator in encouraging people to take the stairs is making stairwells a safer, more inviting place to be.

“An important motivator in encouraging people to take the stairs is making stairwells a safer, more inviting place to be.”

\*This amount included the purchase of paint, carpet, rubber treading, picture frames, artwork, signage and installation of music.

\*\*Kerr, N.A., Yore, M.M., Ham, S.A., & Dietz, W.H. (2004). Increasing Stair Use in a Worksite Through Environmental Changes. *American Journal of Health Promotion*, 18 (4): 312–315.

## How The CDC Rejuvenated Stairwells To Increase Physical Activity

Through CDC’s “StairWELL to Better Health” project, the Rhodes Building stairwells were rejuvenated. First, carpeting was laid over the concrete stairs and flooring, and rubber treading was added to each of the steps to maximize safety.

Next, the bare walls were transformed by adding brightly colored paint, with each floor a different color. Framed artwork also was added to each floor, which featured people being active, photos of nutritious foods, and picturesque scenery. Royalty-free clip-art was used for many of the pictures, to keep the cost of artwork low.

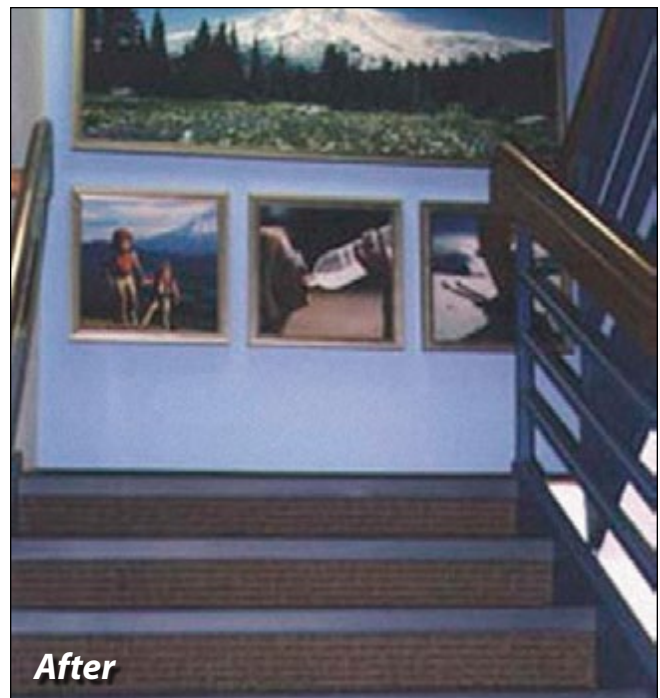
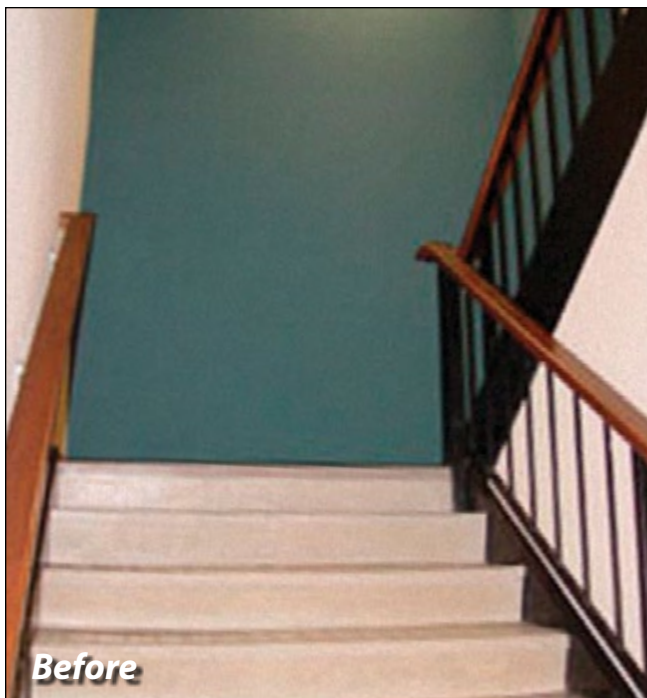
### What You Can Do

- ✓ Carpet your stairwell if it isn’t already, or if the carpet is in bad repair.
- ✓ Add rubber treading for safety.
- ✓ Paint the walls bright colors.
- ✓ Hang artwork in the stairwell, if permitted. Other ideas for framed art include cartoons and children’s art. Pictures should be changed periodically to keep stair users from getting bored.
- ✓ See Project Check list for materials and budget worksheets
- ✓ Be sure to leave room for motivational signs. The next page gives you examples of fun and functional motivational signs.

### References

U.S. Department of Health and Human Services. Physical activity and health: a report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

Through CDC’s “StairWELL to Better Health” project, the stairwell walls were transformed by adding brightly colored paint, with each floor a different color. Framed artwork also was added to each floor, which featured people being active, photos of nutritious foods, and picturesque scenery. Royalty-free clip-art was used for many of the pictures, to keep the cost of artwork low.”



## Section 2: Motivational Signs

The adage is true—old habits ARE hard to break. And for most people, riding the elevator is an old habit. Some people even forget that there are stairs! Posting motivational signs at the places where people have a choice between the stairs and elevator is an important aspect of encouraging people to use the stairs. However, messages and artwork that are motivating to one audience may be a turn-off to another, which is why it is important to test them with your audience first. Find out what motivates your audience and tailor your messages and artwork accordingly. This will help maximize the effectiveness of this intervention.

### What The CDC Did To Create & Test Signs

Below is a brief description of how CDC created and tested messages:

1. A group of people with combined knowledge about physical activity as well health communication and social marketing brainstormed different kinds of messages to consider for the signs (inspirational, factual, and congratulatory). They focused on what they thought would be most motivational to employees.
2. Two focus groups were conducted to see how well these messages tested with the audience (employees working in the Rhodes Building). One focus group was done with employees who frequently used the stairs. The other focus group was done with employees who were not frequent stair users.
3. The moderator welcomed participants and refreshments were offered. The moderator reiterated that the purpose of the focus group was to obtain participants' candid responses regarding the messages that would be placed in various locations throughout the building promoting stairwell use. Participants were asked to speak openly and honestly about the messages.
4. The moderator asked participants to introduce themselves, state on which floor their offices were located, and how their bodies reacted when they walked the stairs. These questions prepared participants for message testing.
5. Next, participants were shown each pre-made sign highlighting a message, and were asked how they felt about the sign.
6. The information gathered from the focus groups was then used to further tailor the messages to meet the needs and perceptions of the audience.
7. After the signs were created, they were placed strategically at “points-of-decision” around the building. (e.g., sign at the elevator saying, “No waiting one door over.”)

## MESSAGE IDEAS

- Do some reps. . . take the steps.
- Do you want to reduce stress and tension?
- Don't wait, activate!
- For a better today and a healthier tomorrow.
- Fight fat. . . Feel fit. . . Frequent these flights.
- Feeling stressed? Burn some steam.
- Free fitness program.
- Have you had your exercise today?
- Hey, thought about the stairs?
- Now that you have refueled. . .
- No waiting one door over.
- No time to exercise today? Your opportunity is now!
- Physical activity will add years to your life, and life to your years.
- Raise your fitness level, one step at a time.
- Sneak activity into your daily routine.
- Skip the elevator and take a flight for fitness.
- Step up to a healthier lifestyle.
- Small steps make a big difference.
- Step up to a new level of fitness!
- The cheapest gym anywhere. . . the stairs!
- The first wealth is health. (Ralph Waldo Emerson)
- The victory is not always to the swift, but to those who keep moving.
- There are 1440 minutes in every day. . . schedule 30 of them for physical activity.
- Want to help control your weight?
- Walk stairs - Burn calories - Feel better - Weigh less - Simple, isn't it?
- Your heart needs exercise. Here's your chance.
- We are what we repeatedly do. (Aristotle)
- You don't wear out. . . you rust out. Stay active.

Change happens one step at a time.



I'm walkin'.  
Yes, indeed.

(Fats Domino)



The victory is not always to the swift, but to those who keep moving.



Physical activity will add years to your life, and life to your years.



The first wealth is health.

(Ralph Waldo Emerson)



Walking up stairs burns almost 5 times more calories than riding an elevator.



The adage is true—old habits ARE hard to break. And for most people, riding the elevator is an old habit. Some people even forget that there are stairs! Posting motivational signs at the places where people have a choice between the stairs and elevator is an important aspect of encouraging people to use the stairs.

## What You Can Do

- ✓ Develop some signs, or start with the samples provided by CDC.
- ✓ Hold a focus group with some employees to get feedback about the signs. If possible, include employees who regularly use the stairs, and employees who don't.
- ✓ At the focus groups, explain the purpose of the project. Tell participants that their honest opinion is needed. Show examples of the signs and ask for their opinions. Do the signs make them feel motivated? Interested? Irritated? Use this feedback to develop signs that work for your employees.
- ✓ If you don't have the time or money to invest in such thorough research, you can test your signs and artwork more informally. Ask colleagues around the office to tell you what they think of various signs, and artwork. Or send out a survey over email. Any input you get is going to help you make better decisions, increase awareness of the project, and make people feel involved!

## Message Ideas

Research indicates that signs are an effective motivator for behavior change involving point-of-prompt decisions, like choosing between the stairs or the elevator. Whether the messages are inspirational, factual, health-related, or humorous, find out what works best with your audience.

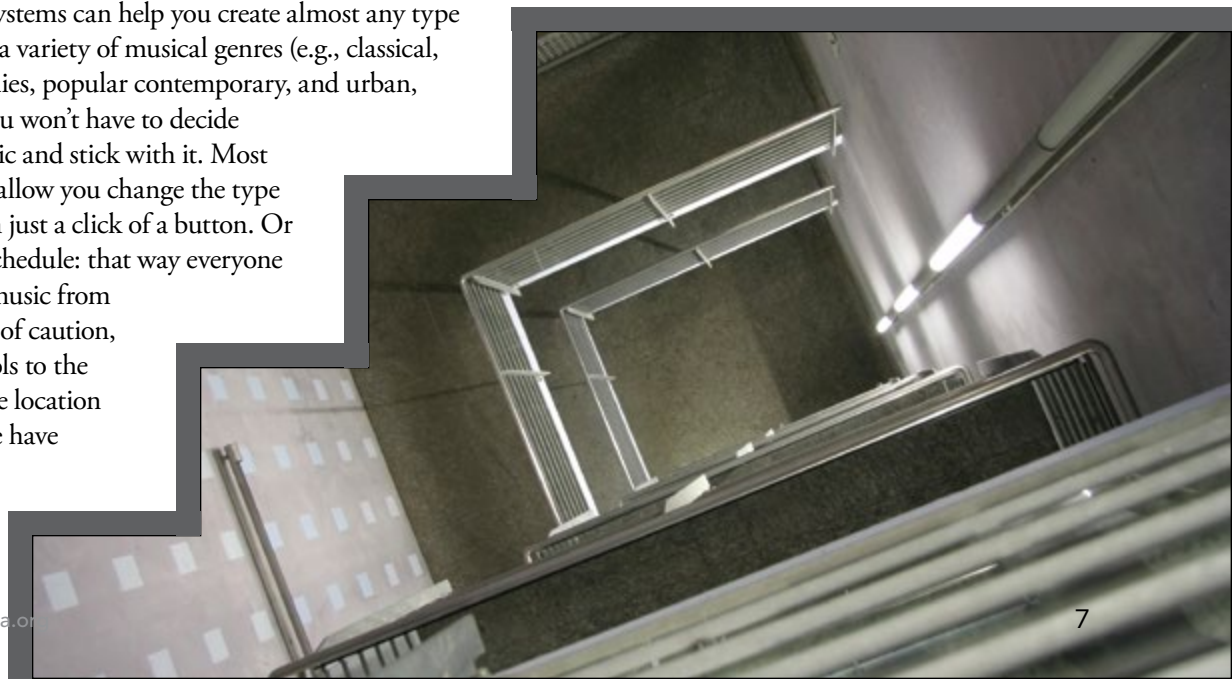
The sidebar on this page contains a list of sample messages. Feel free to use any of these on your signs, or create your own!

## Section 3: Installing Music

The third stage of the “StairWELL to Better Health” intervention brought music to the stairwells. In the five-story Rhodes Building, a digital satellite receiver was installed which feeds the incoming signal into an integrated amplifier that, in turn, feeds five stairwell speakers (one on each floor). Four of the speakers are circular, ceiling-mounted speakers located on the door landing for each of the first four floors. The fifth speaker is a wall-mount on the fifth floor door landing.

Digital satellite music systems can help you create almost any type of atmosphere through a variety of musical genres (e.g., classical, country, jazz, Latin, oldies, popular contemporary, and urban, among others). Also, you won't have to decide on just one type of music and stick with it. Most digital satellite systems allow you change the type of music that plays with just a click of a button. Or set it up on a rotating schedule: that way everyone can hear their favorite music from time to time. One note of caution, however: put the controls to the music system in a secure location where only a few people have access to it.

“Make people aware of the stair options. For example, hang signs by the elevators saying, ‘Have you thought of taking the stairs today?’”



## Section 4: Other Ideas to Consider

Looking for more ways to improve your stairwells? If your budget allows, you may want to work with an interior designer or color consultant to help you create the right “feel” for your stairwells. If not, consider the following ideas.

### Physical Alterations To The Stairwell

- ▶ Adding carpet and rubber treading will increase safety and make your stairwell more inviting.
- ▶ Use creative lighting (e.g., track lighting, incandescent lighting, or halogen lighting).
- ▶ Create theme stairwells (e.g., transport stair users to a Hawaiian beach or tropical rainforest during their trip up or down the stairs, or make your own cartoon and have a frame or two per floor).
- ▶ Create a catchy rhyme with several lines. Put the first line of the rhyme on the first floor, the second line on the second floor, etc. One would have to travel all the way to the top to read the entire rhyme!
- ▶ Include an electronic message board.
- ▶ Add footsteps that lead from the elevators to the stairs and have a message spelled out along the way.
- ▶ Post arrows showing the way to the stairs.
- ▶ Create a “fitness zone” inside the stairwell: “You are entering the Fitness Zone.”
- ▶ Put numbers on the doors to let users know which floor they’re on.
- ▶ Start at bottom floor and give each stair a number so that users can easily track their progress.
- ▶ Allow users to add their signatures to each floor creating a graffiti wall.

### Incentives

- ▶ Incentives can be a great way to encourage people to use the stairs. Use your focus groups, or what ever method you are using to gather information about the signs, colors, and artwork to find out what kinds of incentives, within policy regulations, employees in your office would appreciate.
- ▶ Make it seem as if users are climbing some fixed point such as Mount Everest or a local landmark. On each flight, show them a “map” of where they are.
- ▶ Hold drawings among stairwell users for prizes, if such incentives are permitted. A kick-off event could be held with a “grand re-opening” of your stairwell. Another idea to consider is holding a contest where employees keep track of the number of flights they walk in a week or a month. Award prizes for 1st, 2nd and 3rd place! If prizes aren’t an option, have a contest where the winner may select the music or art in the stairwells for the next week or month.
- ▶ Have a general contest for slogans to increase stair use. These slogans can be incorporated into your artwork and motivational signs. Be sure to note who’s slogan is on which sign!

## WHAT YOU CAN DO

**Increase AWARENESS:** Make people aware of the stair options. For example, hang signs by the elevators saying, “Have you thought of taking the stairs today?” Remind people of the health benefits associated with physical activity, and appeal to the environmentally conscious by pointing out how much energy is used in running an elevator.

**Enhance SKILLS:** Build employee self-confidence. Help those who are willing to take the stairs, but who tire easily or have other barriers to overcome to successfully use the stairs on a regular basis. Employees don’t have to be able to do 5 or 10 flights at a time. Provide motivation and support for taking the stairs even once a day, one flight a day, and build from there. This is where counting the stairs, marking how far one has gone on the stairs, and other such skill-building interventions are appropriate.

**Provide OPPORTUNITIES FOR TRIAL BEHAVIOR:** Offer opportunities for people to try using the stairs without ridicule or experiencing “failure.” Perhaps sponsor a “use the stairs for a day” campaign or make it fun and give people incentives and rewards for using the stairs for one flight, one day, or for one week.

**Create a SUPPORTIVE SOCIAL ENVIRONMENT:** If your stairwells were particularly unpleasant before your renovation, it may take some time to change people’s attitude about the stairwells. Talk about the stairwell in a positive manner, and make it seem like a fun place. Let the stairwell be a happy, fun place to be by providing employees with encouragement, incentives, and messages that support this perception.

**Create a SUPPORTIVE PHYSICAL ENVIRONMENT:** Clean, paint, and decorate the stairwell; add music and other physical intervention ideas to make the stairwell a pleasant place to be. Commit to maintaining the stairwell so it always looks its best!



## Section 5: Tracking Stair Usage

If you are thinking about implementing a stairwell intervention in your building, you may want to consider tracking the use of the stairs before, during, and after the renovation phases are complete. Direct observation, video cameras, and infrared sensors have all been used to track stair usage in past interventions and new technologies are being developed. Each method of tracking stair use has its own benefits and limitations. The method you choose may depend on the cost, practicality, and accuracy involved.

### What The CDC Did To Track Usage

**Infrared Sensors.** For the CDC “StairWELL to Better Health” intervention, infrared beam sensors were installed to collect baseline data and conduct ongoing data collection of stair traffic. These proximity sensors were placed at each of the floors’ stairwell entries and recorded one passage when a person moved between a transmitter and receiver. Therefore, each trip in a stairwell involved two passages, one to enter the stairwell and one to exit. Information from the sensor is downloaded onto a computer and reports can be generated. Whereas direct observation may be able to measure whether an individual is going up or coming down a stairwell, infrared sensors only allow you to track passage through an entrance or exit. In addition, infrared beams are not able to recognize and separate individuals from groups of people who may pass through the beam at the same time. Therefore, passage counts could be underestimated in busy stairwells.

### What You Can Do

Not everyone has the budget (or the need) for Infrared Sensors. We chose them because we wanted a clear idea how various phases of the project affected stairwell use. Below are two more possibilities for tracking stairwell use if you are interested in seeing how your improvements change use in your building.

**Direct Observation.** Direct observation is the “low-tech” method to measure stair use. It simply requires one or more people to watch and record entrance and/or exit from the stairs. Typically, observers are discreetly located at a decision point at the foot of the stairs and/or elevators. Observers count the number of people entering and leaving the stairwell or elevator and may record demographic information as well as direction of use (entering or exiting). Direct observation, however, is usually only done over short time periods (one day to one week) and in short time frames (2–5 hours). It is not a method that can get continuous tracking information over a long period of time, however it is a low-cost method that could give you an idea of the stairwell’s use.

**Video Cameras.** Similar to direct observation, video cameras also can be used to watch and count stair traffic. A video camera or multiple cameras are placed at points of decision for stair and/or elevator use. Recorded data can then be reviewed at a later point in time. However, this may be a time-intensive task because it requires watching the hours of recordings in entirety. Privacy concerns are the biggest limitation of using video cameras to track stair usage.

The information in this article about the CDC appeared on its website, [www.cdc.gov/nccdphp/dnpa/hwi/toolkits/stairwell/index.htm](http://www.cdc.gov/nccdphp/dnpa/hwi/toolkits/stairwell/index.htm), we encourage you to visit this site and learn more about the resources that the CDC has to offer.

## In the Future: Promising Technologies

CDC researchers are exploring innovative technologies for physical activity assessment in a variety of settings.

**“SmartMat.”** Through a CDC Small Business Innovative Research contract, a technology development company is building and testing the “SmartMat” system for measuring physical activity within controlled areas. Prototypes of the “SmartMat” resemble a plain, industrial carpet that can be placed on the ground in various locations such as a stairwell, an outdoor sidewalk, and an outdoor trail. The mat will accurately count people and other objects (e.g., bicycles) crossing the controlled area and will allow for easy data access through direct computer download, Smartcards, or Palm PCs. Testing is currently underway to determine the feasibility of use in everyday situations.

**Automated Image Monitoring System.** Researchers at the University of South Carolina Prevention Research Center have received funding from the Robert Wood Johnson Foundation to develop, field test, and refine a new, automated monitoring system that relies on camera images for tracking physical activity in varying locations including indoor stairwells, paved tracks, and natural surface trails. The sensor will include special features that allow counts of multiple modes of transportation (e.g., pedestrians, cyclists, etc.), compensate for changes in environmental conditions, and capture individuals moving in a group. The system is designed to avoid privacy concerns by tracking an individual but does not identify them.

## Section 6: Project Checklist

Not sure what you will need to prepare your stairwells to become StairWELLS? To properly prepare for your stairs to become a safe and inviting and place to be, you’ll need some basic supplies and equipment for renovation.

### Some Basic Supplies and Equipment

The stairwell project at the Rhodes Building cost \$18,200, including the infrared tracking system. It is very difficult to accurately predict what a similar project will cost somewhere else, or even what supplies, materials, equipment, or permits will be necessary. Before starting your stairwell renovation, check with your building manager about the possibilities. Also, don’t limit yourself to the changes we made in our StairWELL project—use your needs assessment time to understand what employees would like and use.

People considering replicating this project have asked us about project costs. We have included some of our cost and material information for reference only. The cost of our project was substantially reduced because the building managers were preparing to renovate the stairwell anyway. We only had to make up the difference in materials and labor above what they had already scheduled for renovation. Also, material and labor costs vary considerably across the country. In the Project Checklist, we’ve provided some information to help you estimate costs for your area.

**A Word About Permits:** Check with your building manager and safety officer to identify all relevant permits, fire and building codes BEFORE you make your purchases. It would be a shame to spend a lot of money on framed artwork, for example, only to find out that it is against code in your area to hang them!

**Paint.** Paint is one of the most inexpensive ways to make a large visual impact in your stairwells. We used brightly colored paint to make the stairwell landing walls cheerful and inviting. The wall on each floor's landing was painted a different color. We also painted the stair railings a color that coordinated with the carpet. The floor numbers (1, 2, 3, 4 or 5) were painted (in the corresponding color) on the stairwell door for each floor.

**Carpet.** Installing carpet, if not already present, can make a huge difference in the visual appeal and comfort of your stairwell. You might find it is easier to pick a carpet color first, and then coordinate your paint choices to it.

**Rubber Stairtreads.** If you decide to install carpet in your stairwell, make sure to include rubber safety treading in your budget. It is relatively inexpensive and will help make your stairwell a safer place to walk. Make sure to take your carpet color choice into consideration when picking out your rubber safety tread.

**Framed Artwork.** We chose images for our artwork in the halls that showed people being physically active and focused on healthy eating and other healthy behaviors. The images we used are royalty-free and came from stock image banks such as

**Digital Vision:** [www.digitalvisiononline.com/home/index.asp](http://www.digitalvisiononline.com/home/index.asp)\*

**Getty Images:** [creative.gettyimages.com/source/home/home.asp](http://creative.gettyimages.com/source/home/home.asp)\*

## BUDGET WORKSHEET

Use this budget worksheet to help you estimate the cost of renovating your stairwell.

- \$ \_\_\_\_\_ Paint
- \$ \_\_\_\_\_ Carpet
- \$ \_\_\_\_\_ Rubber Stairtreads

### Motivational Signs

- \$ \_\_\_\_\_ Focus Groups
- \$ \_\_\_\_\_ Sign Production
- \$ \_\_\_\_\_ Sign Mountings
- \$ \_\_\_\_\_ Motivational Signs (Total)

### Framed Artwork

- \$ \_\_\_\_\_ Graphic purchase
- \$ \_\_\_\_\_ Print production
- \$ \_\_\_\_\_ Mounting/Framing
- \$ \_\_\_\_\_ Installation
- \$ \_\_\_\_\_ Framed artwork (Total)
- \$ \_\_\_\_\_ Purchase/Installation of Digital Satellite Receiver
- \$ \_\_\_\_\_ Monthly subscription fee (ongoing)
- \$ \_\_\_\_\_ Tracking system (if applicable)
- \$ \_\_\_\_\_ **Project TOTAL**



With these types of stock image banks, you make a one-time purchase of the image, and therefore do not have to pay any type of royalty/usage fee. If your budget is very limited, there are searchable banks for free images on the Internet. If you obtain one of high enough quality (suggested DPI of at least 300) you can have the images enlarged and framed.

We chose to place four pictures on each floor—one large, framed picture (72" × 72") with three smaller, framed pictures (20" × 20") centered under.

**Motivational Signs.** Motivational signs are a great way to encourage people to use your new StairWELL. If you want to create your own signs, testing them with the employees in your building is an important step. To develop our signs, an in-house moderator conducted two focus groups (lasting one hour each) to see how well a variety of messages tested with the audience (employees working in our building.) The first focus group was done with employees who frequently used the stairs. The second focus group was done with employees who were not frequent stair users. Participants in both groups were asked to:

- ▶ Which floor their offices were located, and how their bodies reacted when they walked the stairs.
- ▶ Share their feelings about 24 mock signs, which highlighted various motivational messages.

The information gathered from the focus groups was then used to further tailor the messages to meet the needs and perceptions of the audience. In-house graphics staff created 14 final motivational signs (13 ¾" × 8 ⅛") that were posted strategically at “points-of-decision” around the building (e.g., sign at the elevator saying, “No waiting one door over.”).

The total production cost for the 14 signs was \$700. We used in-house graphic resources for most of this thereby reducing the cost of designing and producing the signs.

**Music.** We installed a digital satellite receiver that feeds the incoming signal into an integrated amplifier that, in turn, feeds five stairwell speakers (one on each floor). Four of the speakers are circular, ceiling-mounted speakers located on the door landing for each of the first four floors. The fifth speaker is a wall-mount on the fifth-floor door landing.

This digital satellite music system can help create almost any type of atmosphere through a variety of musical genres (e.g., classical, country, jazz, Latin, oldies, popular contemporary, and urban, among others). Also, you don't have to decide on just one type of music and stick with it. Most digital satellite systems allow you change the type of music that plays with just a click of a button.

One person in each building should be designated to make the music selections on a routine basis. In the Rhodes Building, the “controls” are located inside the LAN Administrator's office, thus he decides what music plays and when to change it. He is, however, receptive to employees' requests for a change in music.

We paid approximately \$500 to have the digital satellite equipment installed (allow 10-14 business days to order and install). Each month, we pay \$55 to keep our service active.

## Section 7: Related Resources

Andersen RE, Franckowiak SC, Snyder J, Bartlett SJ, Fontaine KR. Can inexpensive signs encourage the use of stairs? Results from a community intervention. *Annals of Internal Medicine* 1998;129(5):363–369.

Blamey A, Mutrie N, Aitchison T. Health promotion by encouraged use of stairs. *British Medical Journal* 1995;311(7000):289–290.

Boutelle KN, Jeffery RW, Murray DM, Schmitz MK. Using signs, artwork, and music to promote stair use in a public building. *American Journal of Public Health* 2001; 91(12):2004–2006.

Boutelle KN, Jeffery RW, Schmitz K. The use of music and artwork to promote daily physical activity. *Society of Behavioral Medicine's 20th Annual Scientific Sessions*. 1999 March 3. Ref Type: Abstract

Brownell KD, Stunkard AJ, Albaum JM. Evaluation and modification of exercise patterns in the natural environment. *American Journal of Psychiatry* 1980;137(12):1540–1545.

Centers for Disease Control and Prevention. *Increasing physical activity: a report on recommendations of the Task Force on Community Preventive Services. Morbidity and Mortality Weekly Report* 2001;50(No. RR-18):1–14.

Coleman KJ, Gonzalez EC. Promoting stair use in a U.S.-Mexico border community. *American Journal of Public Health* 2001;91(12):2007–2009.

Kerr, N.A., Yore, M.M., Ham, S.A., & Dietz, W.H. (2004). *Increasing Stair Use in a Worksite Through Environmental Changes*. *American Journal of Health Promotion*, 18 (4), 312–315.

Mutrie N, Blamey A, Mitchell J. What stops people choosing the stairs? Physical activity interventions: an American College of Sports Medicine specialty conference 1997; Ref Type: Abstract.

Titze S, Martin BW, Seiler R, Marti B. A worksite intervention module encouraging the use of stairs: results and evaluation issues. *Sozial- und Praventivmedizin* 2001;46(1):13–19.

