# GO BUILD TRAINING MANUAL

THE

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A GUIDE TO CAREERS IN CONSTRUCTION

Featuring Alabama Success | Architecture & Construction

In partnership with

#### ALABAMA DEPARTMENT OF EDUCATION CAREER TECHNICAL EDUCATION

Developed with the generous support of

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#### ALABAMA POWER FOUNDATION

Presented by

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GO BUILD ALABAMA



### Architecture and Construction



# A MESSAGE FROM THE GOVERNOGR

The investments we make in our students today will help shape their futures for years to come. Our students are destined to become high-performing professionals in all sectors of the workforce.

Alabama SUCCESS is an initiative designed to help students access valuable information about current careers, postsecondary learning, and financial literacy resources.

Our goal is to give students the opportunities they need to prepare themselves for success. We want our students to be well-equipped for top careers in Alabama's workforce – which has a growing influence on the global marketplace.

This Alabama SUCCESS guide is a great resource to assist in preparing for a bright and successful future.



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Governor of Alabama **ROBERT BENTLEY** 

# A MESSAGE FROM THE SUPERINTENDENT

Alabama SUCCESS is an invaluable resource designed specifically for students. By learning about actual career fields and the education and experience required for specific jobs, you will be better able to figure out what you want to do after high school and what you need to do to achieve your goals.



Alabama State Superintendent of Education **DR. THOMAS R. BICE** 



# A MESSAGE FOR PARENTS & EDUCATORS

When it comes to planning for the future, don't let your student go it alone.

If you're the parent, teacher, or counselor of a student interested in a career in the skilled trades, now is the time to help guide them.

Most students believe that college is the only road to success after graduating high school. And while that is certainly a viable option, there are many other roads that can lead to a meaningful career. A career in the skilled trades is both accessible and advantageous, and with the right guidance and preparation, you can help your student get there.

We have lots of supplementary materials available to help spark your student's interest in the skilled trades. Just let us know how we can help.

### **ARCHITECTURE & CONSTRUCTION**

Architecture and construction professionals create virtually every structure you see around you, from parks to houses to skyscrapers. Whether you dream of designing a new building or wielding a blowtorch on a construction crew, opportunities are available throughout Alabama for highly skilled, hardworking people in this field.

Does the architecture and construction career cluster fit you, your talents, and your dreams? Take this quick quiz to find out.



Do you like building things or drawing?

#### WHY IT MATTERS

In the architecture and construction career cluster, you can either be a designer or a builder.



### Do you like working with others?

#### WHY IT MATTERS

Creative work gets judged by audiences, critics, editors, and clients, so dealing with criticism is part of most jobs.



Do you enjoy working with tools?

#### WHY IT MATTERS

Whether you work on the creative design of buildings or the hands-on side, you will need to be skilled at using a multitude of different tools.



### Do you have a strong attention to detail?

#### WHY IT MATTERS

The key to working in architecture and construction is accuracy. No matter your job, employers will expect you to manage many details, both large and small.

#### ALABAMA SUCCESS

Explore 16 different career interest areas in the Career Cluster Education for Students System.

www.altechprep.org



Do you make good grades in math and science?

#### WHY IT MATTERS

Math and science are pivotal to architecture and construction because they serve as the basis for design principles.

If you answered "yes" to most of these questions, architecture and construction could be right for you.

### SEE EXAMPLE PLAN



# THE ALABAMA EDUCATION PLAN

Map out an Alabama Education Plan based on your interests, strengths, and career goals.

Your plan outlines the courses and electives you'll take in high school, plus related clubs and career preparation. Your counselor will work with you to determine the learning experiences needed for you to complete your plan, such as using distance learning or earning college credit from your local community college.

An Articulation Agreement is a fancy term for a simple education agreement that can streamline your road to a successful career.

Statewide articulation agreements link all high schools and two-year colleges in Alabama. They provide credit at two-year colleges for coursework mastered at the high school level.

Articulation agreements can take you down your career pathway as well. In many cases, students transferring from two-year to four-year colleges and universities can complete four-year general studies core course requirements before they transfer.

#### Get a CAREER AND TECH EDUCATION CERTIFICATE

www.alcareertech.org/cte.html



Electrical Power Line Installer and Repairer

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#### SOC 49-9051

#### DESCRIPTION

Install, maintain, and repair electrical wiring and fixtures related to power lines.

starting hrly. wage \$15.80

AVG. HRLY. WAGE **\$25.67** 

**\$33.50** 

EDUCATION LEVEL On-the-Job Training Construction Manager

#### SOC 11-9021

Develop, organize, schedule, and implement construction projects.

starting hrly. wage \$24.50

AVG. HRLY. WAGE \$35.76

EXPERIENCED HRLY. WAGE \$64.26

EDUCATION LEVEL Bachelor's Degree

#### Interior Designer

#### SOC 27-1025

DESCRIPTION Plan, design, and furnish interiors of residential, commercail, or industrial buildings.

starting hrly. wage \$10.26

AVG. HRLY. WAGE **\$20.34** 

EXPERIENCED HRLY. WAGE

**EDUCATION LEVEL** Associate's Degree

#### Mechanical Drafter

#### SOC 17-3013

#### DESCRIPTION

Create detailed drawings of diagrams of machinery and mechanical devices for architecture and construction projects.

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starting hrly. wage \$14.33

AVG. HRLY. WAGE \$23.06

EXPERIENCED HRLY. WAGE

EDUCATION LEVEL On-the-Job Training

#### Landscape Architect

#### SOC 17-1012

#### DESCRIPTION

Plan and design land areas for public and private commercial, industrial, and residential sites.

# starting Hrly. wage \$15.29

AVG. HRLY. WAGE \$17.86

EXPERIENCED HRLY. WAGE \$46.77

EDUCATION LEVEL Bachelor's Degree

#### Electrical and Electronics Repairer

#### SOC 49-2095

#### DESCRIPTION

Maintain, test, and inspect electrical equipment in generating stations, substations, and in-service relays.

starting Hrly. wage \$21.75

avg. hrly. wage **\$29.44** 

EXPERIENCED HRLY. WAGE \$34.44

EDUCATION LEVEL Postsecondary Vocational Training

#### Civil Engineering Technician

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#### SOC 17-3022

#### DESCRIPTION

Assist civil engineers in planning and designing roads, bridges, water and sewage systems, and a variety of other private and public building projects.

starting hrly. wage \$12.30

AVG. HRLY. WAGE

EXPERIENCED HRLY. WAGE \$29.03

EDUCATION LEVEL On-the-Job Training

#### Architect

SOC 17-1011

#### DESCRIPTION

Plan and design structures, such as private residences, office buildings, theaters, and factories.

starting hrly. wage \$19.13

AVG. HRLY. WAGE \$33.63

EXPERIENCED HRLY. WAGE \$59.77

EDUCATION LEVEL Bachelor's Degree

#### Sheet Metal Worker

### SOC 47-2211

**DESCRIPTION** Fabricate, assemble, install, and repair sheet metal products and equipment.

starting hrly. wage \$10.06

avg. hrly. wage \$15.84

EXPERIENCED HRLY. WAGE \$24.57

EDUCATION LEVEL On-the-Job Training

#### Pile Driver Operator

#### SOC 47-2072

DESCRIPTION Control pile-driving machines that provide foundational support for bridges and buildings.

starting hrly. wage \$18.43

AVG. HRLY. WAGE **\$21.46** 

EXPERIENCED HRLY. WAGE \$28.16

EDUCATION LEVEL On-the-Job Training

#### **Civil Engineer**

SOC 17-2051

#### DESCRIPTION

Plan structures such as buildings, highways, and bridges, ensuring the best and safest materials and methods are used.

# starting hrly. wage \$20.03

AVG. HRLY. WAGE \$33.33

EXPERIENCED HRLY. WAGE \$54.51

EDUCATION LEVEL Bachelor's Degree

#### Construction & Building Inspector

#### SOC 47-4011

#### DESCRIPTION

Inspect structures to determine structural soundness and compliance with specifications, building codes, and other regulations.

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starting hrly. wage \$14.48

AVG. HRLY. WAGE \$22.57

EXPERIENCED HRLY. WAGE

EDUCATION LEVEL On-the-Job Training

# GETTING READY HIGH SCHOOL

#### **9TH GRADE**

- Research your career options based on your interests, talents, and goals.
- Choose a career cluster.
- Create an Alabama Education Plan.
- Course selection and grades really do count when you are applying to colleges and training programs.
- Keep a folder or portfolio of your activities, awards, accomplishments, and work experience.

#### **10TH GRADE**

- Consider taking the PLAN (pre-ACT) if you plan to apply to a two-year college or university in the future.
- Consider taking the PSAT (preliminary SAT/ National Merit Scholarship Test).
- Use the information in your portfolio to create a résumé.
- Apply for summer jobs, internships, or volunteer activities related to your career cluster.

# GETTING READY HIGH SCHOOL

#### **11TH GRADE**

- Take the PSAT/NMSQT.
- Research postsecondary education options related to your career goals.
- Register to take either the ACT or the SAT I and SAT II Subject Tests.
- Apply for summer jobs, internships, and volunteer activities related to your career goals.
  - Use www.fafsa4caster.ed.gov to determine your financial aid eligibility.

#### **12TH GRADE**

- In the fall, apply to postsecondary programs and retake any standardized college admissions tests if you would like to improve your score.
- Beginning in November, complete college financial aid forms.
- In the spring, choose your postsecondary program on the basis of where you have been accepted, costs, etc.
- Continue doing your best work. Most schools require a final transcript before making your acceptance official.

ALABAMA SUCCESS ARCHITECTURE & CONSTRUCTION

### CHECK OUT THESE PROGRAMS

SkillsUS4

Most Alabama schools offer these student organizations related to the Architecture & Construction career cluster.

#### **SKILLSUSA**

SkillsUSA is a partnership of students, teachers, and industry working to ensure America has a skilled workforce. Programs include student competitions and employer-driven training in all career and technical education areas.

www.skillsusa.org

#### NATIONAL FFA ORGANIZATION

This federally chartered organization is one of the most critical career and tech student organizations in the field of agriculture. Educational opportunities abound with FFA, particularly for students interested in architecture and construction.

www.ffa.org



# TAKING IT TO THE NEXT LEVEL POSTSECONDARY PROGRAMS

# In Alabama, the learning doesn't stop with high school graduation.

Visit the Alabama Commission on Higher Education for a list of public postsecondary (after high school) institutions that may offer programs related to this cluster.

Alabama Commission on Higher Education »

#### **ALABAMA SUCCESS**

Explore 16 different career interest areas in the Career Cluster Education for Students System.

#### Alabama Tech Prep Website »

# RESOURCES

#### ACCESS »

ACCESS (Alabama Connecting Classrooms, Educators, and Students Statewide) Distance Learning provides opportunities and options for Alabama public high school students to engage in advanced placement (AP), elective, and other courses to which they may not otherwise have access.

#### Alabama Career Information Network »

This new web portal increases Alabama students' and families' access to valuable career exploration activities and college financial aid information.

#### Alabama Commission on Higher Education »

Click on "Colleges & Universities" within this website for a list of four-year institutions in Alabama.

#### The Alabama Community College System »

Learn all about the public and private two-year colleges in Alabama. Connect directly to each school's website to see the courses, majors, degrees, and scholarships they offer to Alabama students.

#### Alabama Council of the American Institute of Architects »

The AIA is a large network of licensed architects, interns, and affiliates. Their primary goal is to promote the importance of modern architecture throughout the state.

#### **Alabama Virtual Library** »

This site, funded by the Alabama Legislature, provides all students, teachers, and citizens of Alabama with online access to essential library and information resources.

#### **America's Career InfoNet »**

Use this site to search for occupational information, industry information, and state-specific labor market information.

#### O\*NET (Occupational Information Network) »

O\*NET provides full information on occupations, including state-by-state salary data, employment prospects, and skill matching for students.

#### U.S. Department of Labor Occupational Outlook Handbook »

A valuable resource for both counselors and students, this federal website offers updated information on careers, job responsibilities and working conditions, salaries, and what jobs will be available in the future.



# TIME TO GET REAL

Things change when you graduate high school. All of a sudden, most students are faced with a growing stack of responsibilities. Rent. Bills. Groceries. Car. And to make sure all of those things fit into place, you'll have to start working.

But there's a difference between a job and a career. So if you'd prefer to make a living rather than just get by, it's time to start thinking about the best long-term opportunities for your future.

# REALTY CHECK

Don't get overwhelmed by your new financial responsibilities. Check out the widget below to calculate the average cost of living in Alabama and get a head start on balancing your budget.

# AVG. COST OF LIVING



TOUCH TO START



# THE FUTURE IS IN YOUR HANDS

The job market can be a frightening thing to face. Too many people looking for jobs, not enough people hiring. It's a story we hear every day.

#### BUT IT'S NOT THE WHOLE STORY.

Because America is currently facing a shortage of skilled construction workers. That means that any young men and women who are willing to work hard—and get their hands dirty—will be facing big opportunities.

# THE SITUATION

Alabama's construction workforce is getting older—and smaller.



Not everyone is strong enough for this kind of work, or the life that comes with it. But the opportunity is there for anyone willing to work. Thousands of jobs open up every year in our state. With the right training you can start earning competitive pay and benefits right away — without student loans.

STREET, STREET

ALL ARE WELCOME TO THE TABLE OF TRADESMEN XXXXXXXXXXXXX YOU JUST HAVE TO TAKE THE FIRST STEP



# THE FUTURE IS FOR BOILERMAKERS

MED. HOURLY WAGES

SKILLS NEEDED

\$26.97

**Å** 

**EDUCATION REQUIRED** High School Diploma

The name "boilermaker" originates from the craft of making, installing and repairing boilers, but that's not all that these tradesmen do. Boilermakers produce steel fabrications from plates and sections, which means they may also install and repair closed vats and other large vessels that hold and process oil, chemicals, beer and hundreds of other products. In addition, boilermakers may work to install, repair and maintain air pollution equipment, blast furnaces, water treatment plants, smoke stacks, storage and process tanks, fireboxes or hydroelectric power generation turbines.

PRESS PLAY

# THE FUTURE IS FOR CARPENTERS

MED. HOURLY WAGES

SKILLS NEEDED

\$21.08

EDUCATION REQUIRED High School Diploma

PRESS PLAY

Carpenters work with wood and other materials to construct and maintain buildings, tunnels, bridges and other structures. Their duties can range from erecting scaffolding and constructing tunnel bracing to building concrete forms for tunnels, bridges and other projects.



PRESS PLAY

# THE FUTURE IS FOR ELECTRICIANS

SKILLS NEEDED



#### MED. HOURLY WAGES

\$22.32

**EDUCATION REQUIRED** Vocational School, On-the-Job, Assoc. Deg.

Electricians install and maintain the electrical systems and wiring that power the nation's businesses, factories and homes. These tradesmen use blueprints to determine the locations of circuits, outlets, load centers and panel boards and adhere to local, state and national building codes. When installing, electricians use hand tools such as screwdrivers, conduit benders, pliers and wire strippers. Later, they use ohmmeters, ammeters, voltmeters and other equipment to test connections and ensure that components are compatible and safe.

# THE FUTURE IS FOR EQUIPMENT OPERATORS

SKILLS NEEDED

#### MED. HOURLY WAGES

\$21.45

**EDUCATION REQUIRED** High School Diploma

PRESS PLAY

Equipment operators are responsible for operating machinery at construction sites to help move heavy materials, clear and grade land, build and maintain roads, dig trenches, spread asphalt or any number of important duties. With many recent advancements in technology, contractors must know how to inspect, maintain and adjust their equipment.

# THE FUTURE IS FOR INSULATION WORKERS



SKILLS NEEDED

\$15.34

**EDUCATION REQUIRED** High School Diploma

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Insulation workers install the materials used to control and maintain the temperature of buildings and mechanical equipment. Some types of insulation are fastened with adhesive, staples or tape, while others, particularly in attics or exterior walls, are blown in using a machine.

# THE FUTURE IS FOR

SKILLS NEEDED



#### MED. HOURLY WAGES

\$30.10

**EDUCATION REQUIRED** Vocational School, On-the-Job, Assoc. Deg.

Linemen are responsible for the construction and maintenance of our country's electrical power systems, including the installation and repair of power lines, transformers, capacitor banks, insulators, fuses and more. A lineman maintains the entire power infrastructure between the point of origin and the point of delivery, working on both live and de-energized lines. A lineman's work often requires working high in the air, occasionally up to 300 feet off the ground, and sometimes requires working in underground vaults or trenches.

PRESS PLAY

### THE FUTURE IS FOR MASONS



#### MED. HOURLY WAGES

SKILLS NEEDED

\$21.94

**EDUCATION REQUIRED** High School Diploma **P** TRAIN

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Whether you're a brick & blockmason or a cement mason, you'll be working with bricks, cinder blocks, structural tile, mortar and concrete to make your living. You'll be constructing and repairing all types of structures, from floors, walls and fireplaces to columns and foundations.

# THE FUTURE IS FOR PAINTERS

MED. HOURLY WAGES

SKILLS NEEDED

\$16.72

**EDUCATION REQUIRED** High School Diploma

Painters apply paint, stain, varnish and other finishes to equipment, buildings, bridges and other structures using rollers, brushes and spray guns. To ensure the paint or finish adheres properly, painters often begin a project by removing the old coat of paint. They then prepare the surface by filling cracks, sanding rough spots and washing it to remove dirt and grime. When painting new surfaces, painters apply a primer or sealer to prepare the surface for the top coat. Painters are also responsible for mixing and matching colors and selecting the best, most durable paint for the project.

### THE FUTURE IS FOR PIPEFITTERS AND PLUMBERS

SKILLS NEEDED

PRESS PLA

#### MED. HOURLY WAGES

\$21.94

**EDUCATION REQUIRED** Vocational School, On-the-Job, Assoc. Deg.

**P** TRAIN

Pipefitters and plumbers are responsible for keeping our pipe systems in working order through installation, maintenance and repairs according to specifications and codes. Pipefitters work with the high-pressure and low-pressure pipe systems used in manufacturing, the generation of electricity, and the heating and cooling of buildings, while plumbers install and repair water, waste disposal, drainage and gas systems in buildings of all sizes.

# THE FUTURE IS FOR ROAD BUILDERS

MED. HOURLY WAGES

SKILLS NEEDED

\$21.45

**EDUCATION REQUIRED** High School Diploma

Road builders operate all kinds of equipment used for applying concrete, asphalt or other materials to road beds, parking lots, airport runways and taxiways and other surfaces. These machine operators are also called on for tamping gravel, dirt or other materials. Positions include concrete and asphalt paving machine operators, form tampers, tamping machine operators and stone spreader operators.

# THE FUTURE IS FOR SHEET METAL WORKERS

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PRESS PLAY



Sheet metal workers fabricate, install and maintain heating and air-conditioning systems, do architectural sheet metal work, construct appliances, heaters and boilers, and perform a variety of other jobs involving sheet metal.



#### SKILLS NEEDED

PRESS PLAY

#### MED. HOURLY WAGES

\$22.45

### EDUCATION REQUIRED

Vocational School, Prior Exper., Assoc. Deg.

Welding, the process of fastening two pieces of metal together by softening with heat and applying pressure, is a versatile trade that equips welders to work in a variety of industries. Several other construction trades, such as pipefitters, boilermakers and sheet metal workers, incorporate welding skills. Welding is also used to join beams during the construction of buildings, bridges and other structures. These tradesmen often work from blueprints, using their knowledge and training to determine the best way to join the parts.

# SUILDING ANEW PETE

### WOMEN IN CONSTRUCTION



PRESS PLAY



# CHOOSE A CAREER PATH



TOUCH TO START



# THINGS YOU SHOULD KNOW BEFORE YOU GO BUILD

#### Do the Math

No matter which area of expertise you choose, math skills matter. Study hard now, because the math you learn in high school and beyond is essential for building a successful career in the trades.

#### **Stay Clean**

The finely honed skills used by construction tradesmen require complete concentration, which you simply won't have if you're doing drugs. Bottom line? Drug free really is the way to be, whether you're building a career in construction or not.

#### Get the Skills

There's a big difference between skilled tradesmen and general laborers. Not only do skilled tradesmen have technical skills that are specific to their trade, but they also make more money and have better opportunities for advancement.

### Safety First

When you begin your first construction apprenticeship or degree program, pay careful attention to the information about safety. Not only will the lessons you learn help you succeed, but they just might save your life.

# THINGS YOU SHOULD KNOW BEFORE YOU GO BUILD

#### **Be Your Own Boss**

The career of a skilled tradesman is anything but dead end. The commercial construction industry offers all kinds of opportunities for tradesmen who would like to own their own business someday.

### The Sky's the Limit

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No matter where you want to go, a career in the trades has the potential to take you there. Tradesmen with highly specialized skill sets often have opportunities to travel the nation, and even the world.

#### Build Cities, Not Houses

If you think you're ready to go build, you need to start thinking big. The best opportunities are often in commercial construction (large-scale building projects such as bridges, hospitals and universities), rather than residential construction (which mainly focuses on singlefamily dwellings).

### What Are You Waiting For?

Jumpstart your career by enrolling in your high school's career tech classes, applying for the pre-apprenticeships offered by some community colleges, and getting involved with SkillsUSA.

# SCHOLARSHIPS

If you're committed to preparing yourself for a career in the trades, there are opportunities to get some help along the way. Check out the scholarship and financial aid opportunities available to see if you qualify:

**Career Tech Community College Scholarships** »

#### STUDENT OF THE MONTH

We want to recognize and reward some of the brightest young minds in Alabama's career preparation courses. Think you deserve to be our next Student of the Month? Your teacher or counselor can nominate you for this excellent opportunity on gobuildalabama.com.

More on Student of the Month »

# THE FUTURE IS IN YOUR HANDS

# BEND IT TO YOUR WILL

OF AMERICA

## AMERICA WASN'T BUILT FROM BEHIND A DESK

#### XXXXXXXXXX

Not just anyone can walk up to a construction site and know what they're doing. It takes patience, skill, and attention to detail. But most of all, it takes guts.

Think you've got what it takes to join the Future Skilled Workers of America? See if you measure up to our core values.

### JOIN FSWA TODAY»

### HELP BUILD AMERICA'S



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The Go Build Training Manual is meant to educate, to engage, and to encourage. But, we think the best inspiration is the active kind. The kind that makes you want to get up from your seat and get involved in the cause.

No matter what they tell you, America wasn't built by a team of suits drinking coffee and pushing papers all day. America was built by red-blooded, hard-working tradesmen with dirty hands, high spirits, and a strong will to succeed.

Our great state needs people like that now more than ever. All you have to do is answer the call.

#### XXXXXXXXXXX

SO GET UP. GET OUT THERE. GO BUILD, ALABAMA.



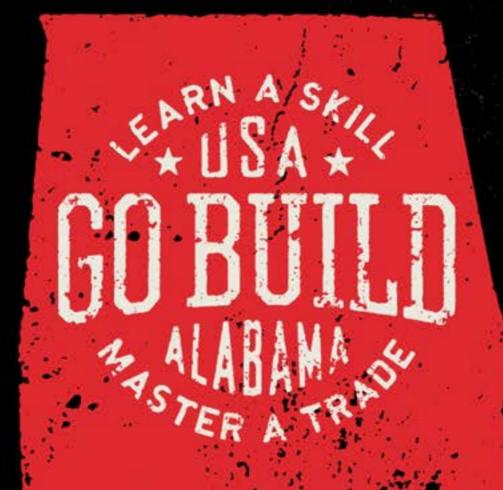
# GET THE IBOOK

### XXXXXXXXXXX



- Optimized for the iPad and Retina Display
- Touchable, scrollable, discoverable page content
- 10+ embedded videos
- Embedded interactive widgets
- One download, no video streaming or browser widgets
- Version update alerts





#### **GOBUILDALABAMA.COM** »