

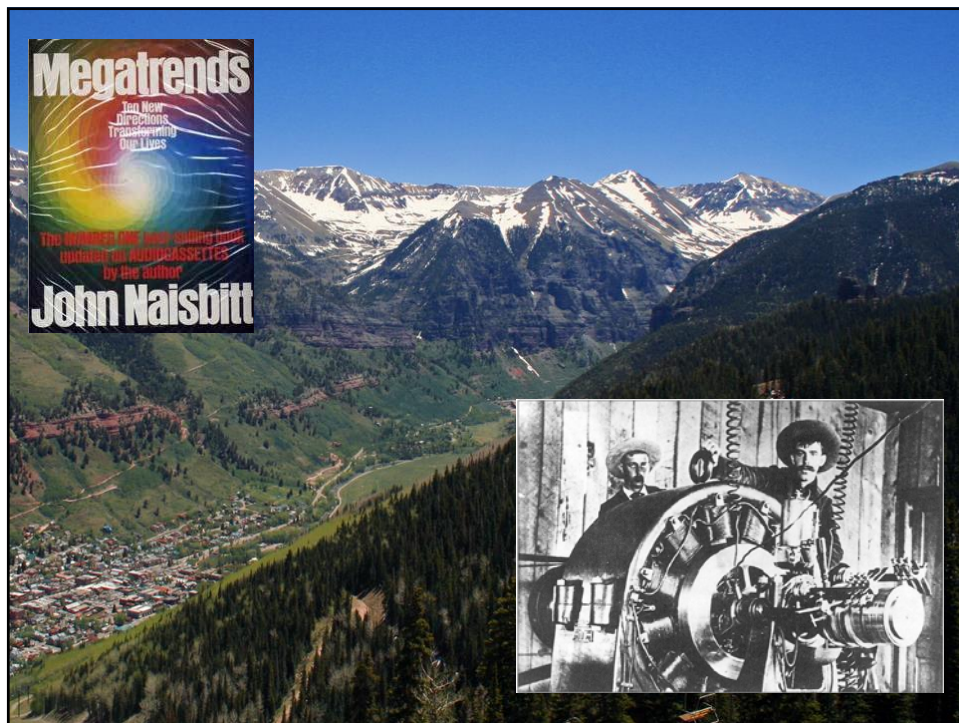
RMSCA

There's always a solution in steel.

# Ten Macro Trends Impacting the Future of the Structural Steel Industry

October 22, 2015

John Cross, PE, LEED AP  
Vice President

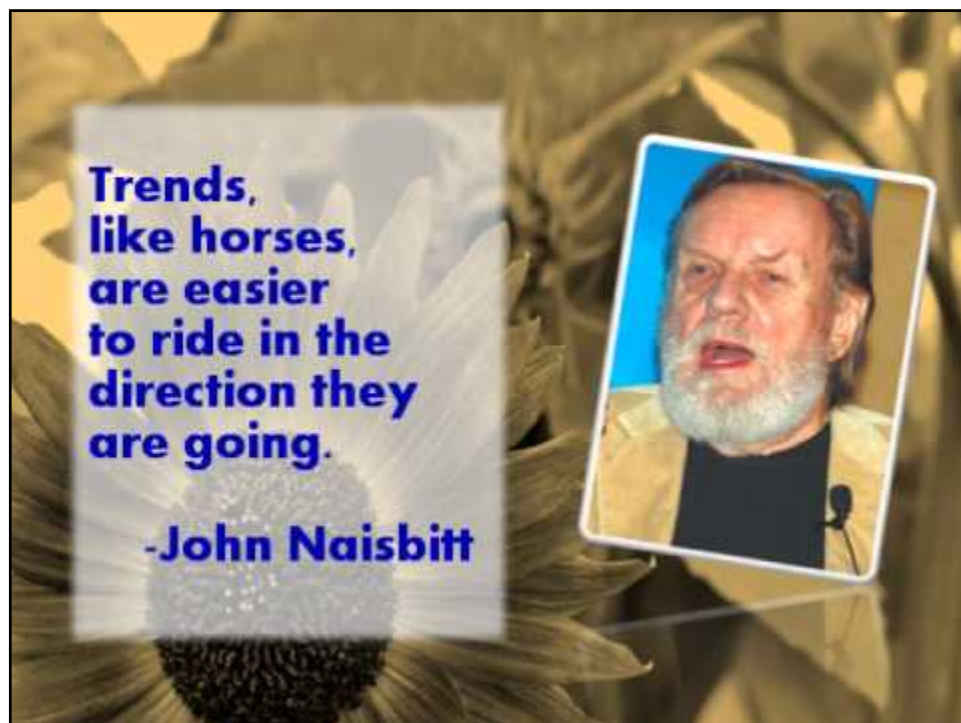
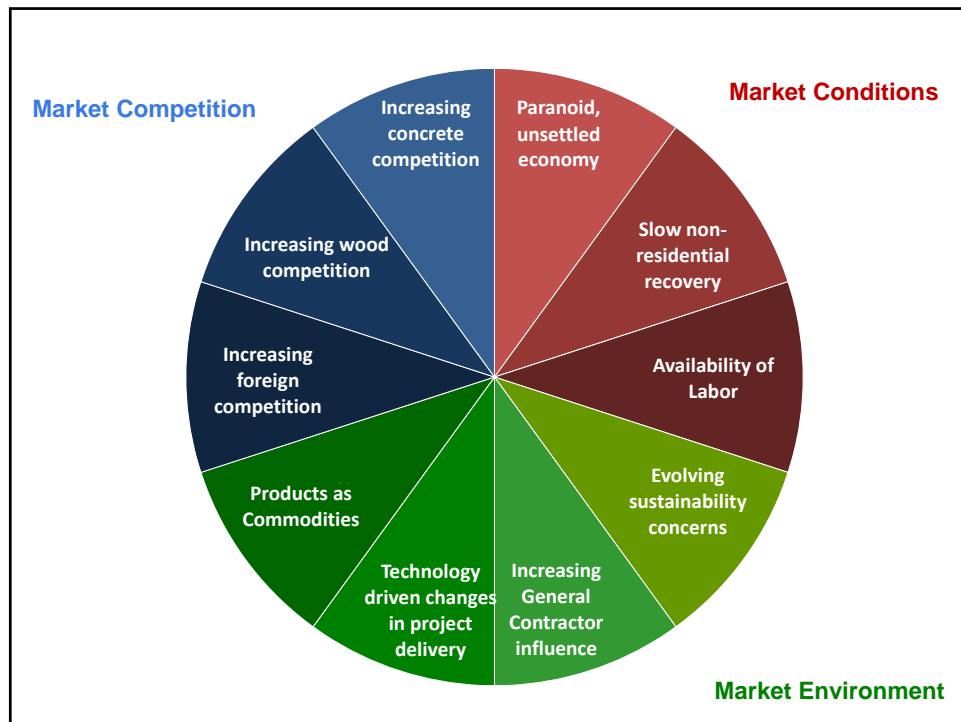


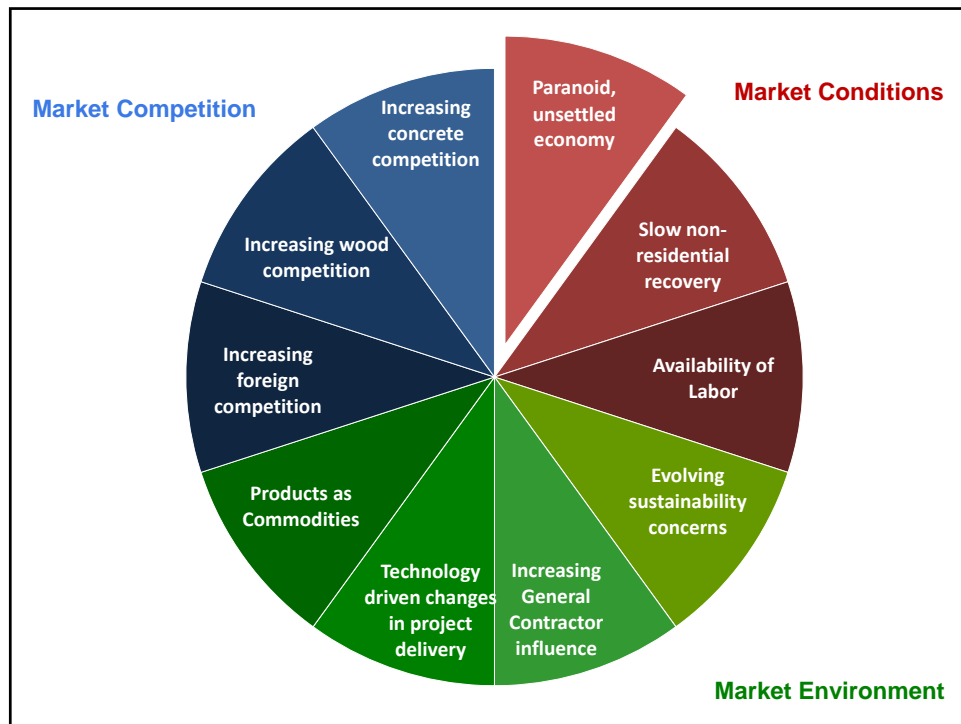
## MEGATRENDS John Naisbitt 1982

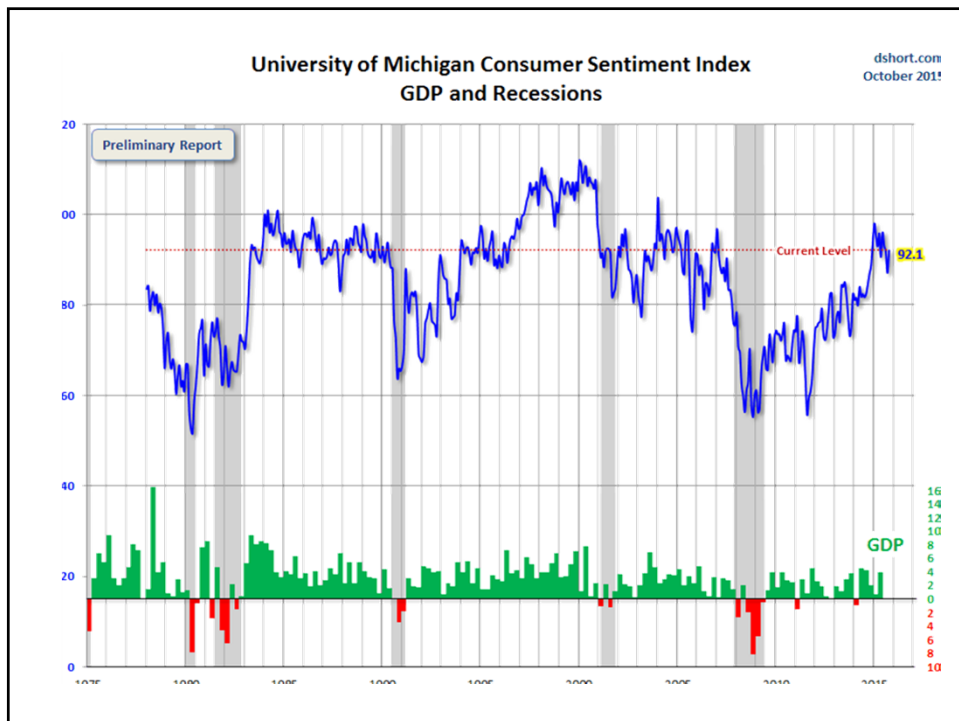
- ◆ Industrial Society → Information Society
- ◆ Forced Technology → High Tech/High Touch
- ◆ National Economy → World Economy
- ◆ Short Term → Long Term
- ◆ Centralization → Decentralization
- ◆ Institutional Help → Self Help
- ◆ Representative Democracy → Participatory Democracy
- ◆ Hierarchies → Networking
- ◆ North → South
- ◆ Either/Or → Multiple Options

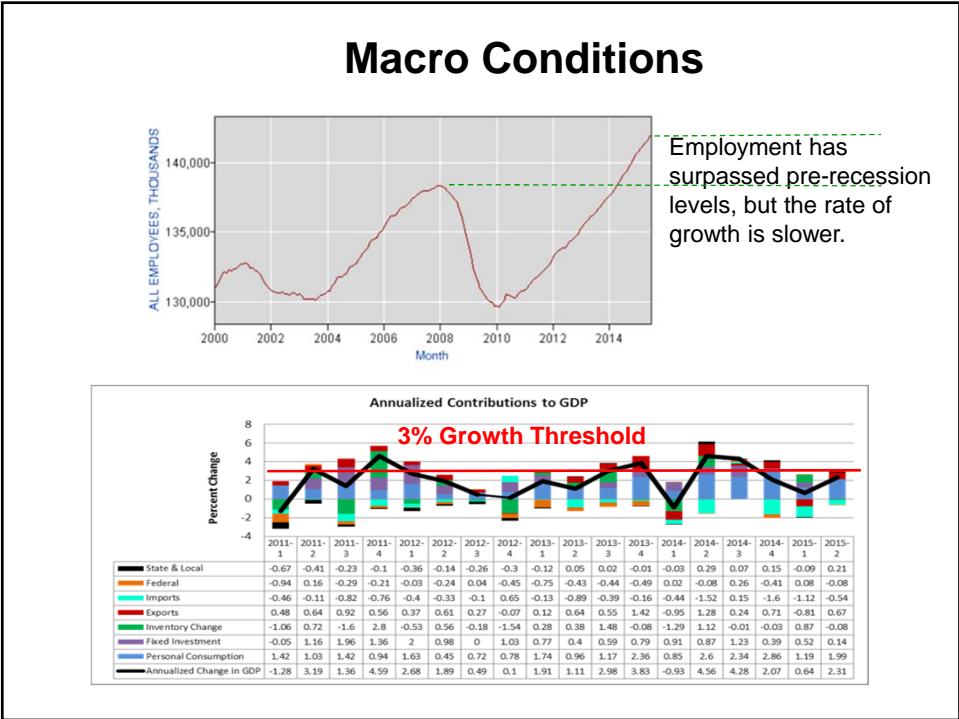
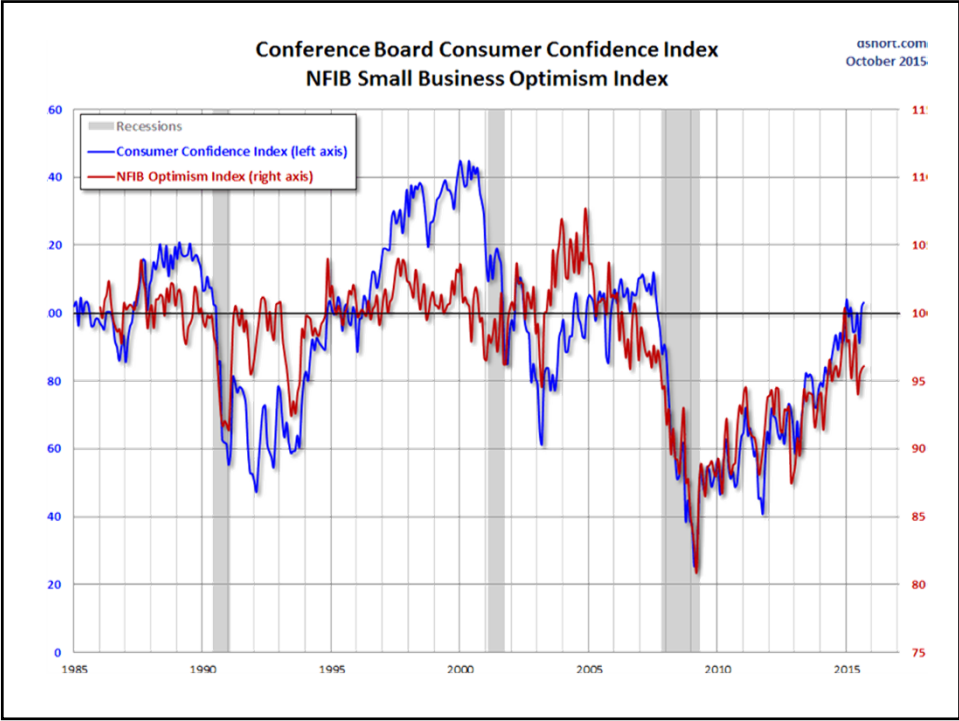


## Design and Construction Macro Trends



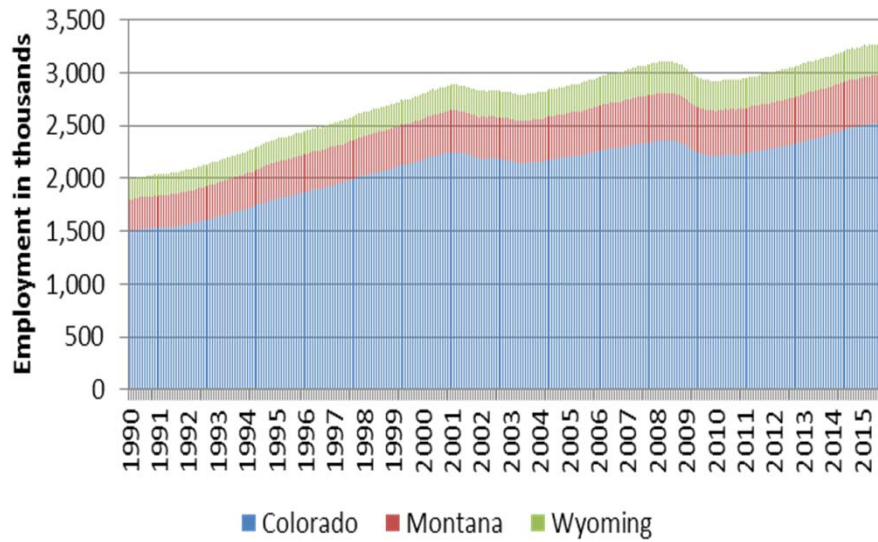


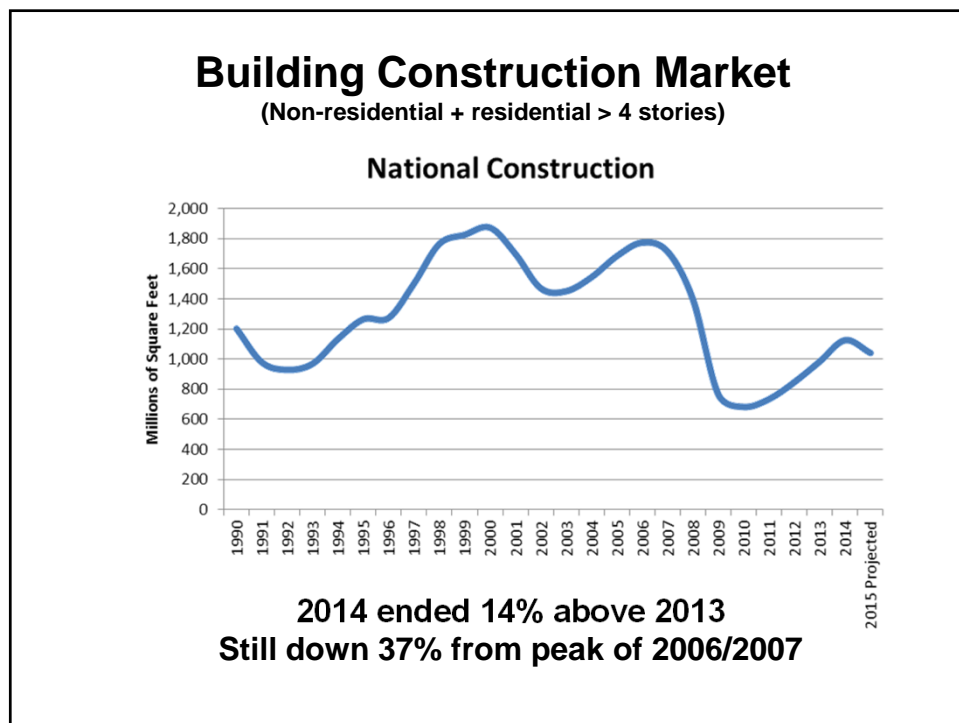
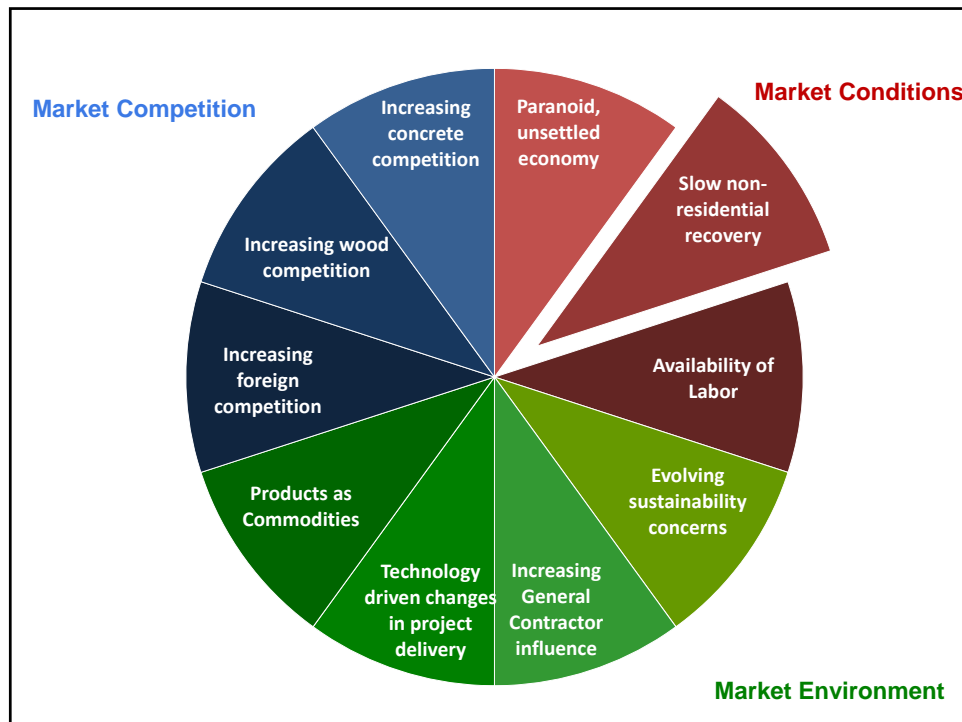






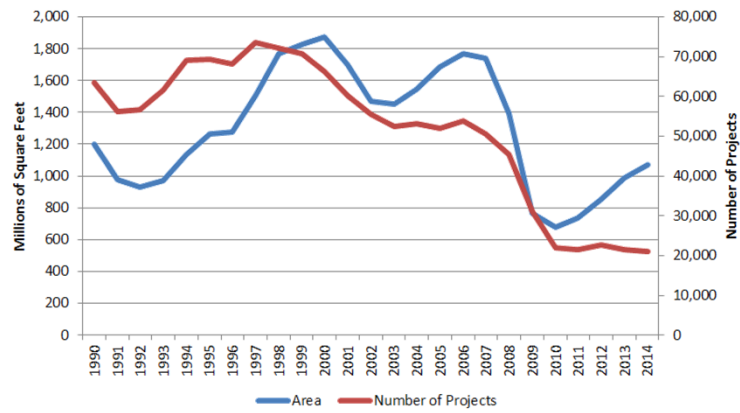
## CO-MT-WY Employment





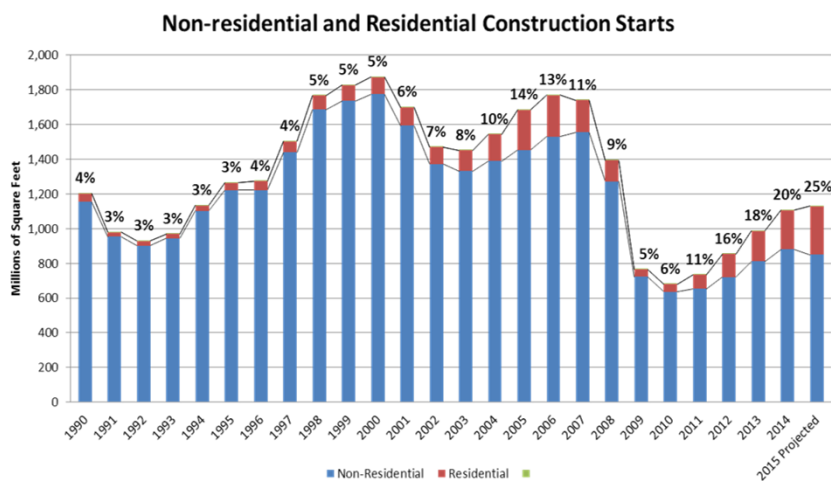


## Building Construction Market (Non-residential + residential > 4 stories)

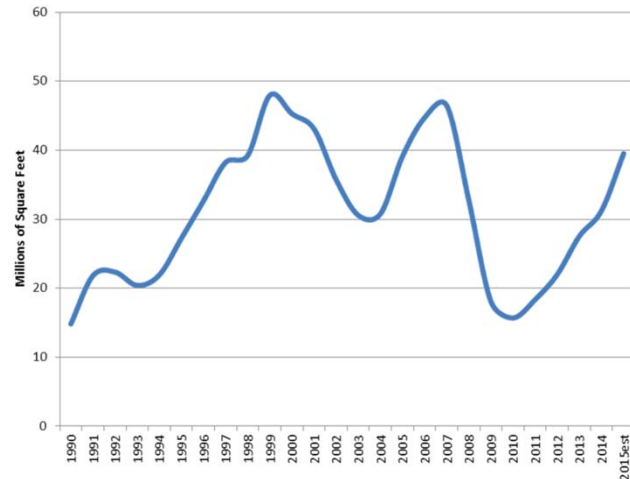


**Square Footage expanding  
Number of Projects flat**

## Slow Non-Residential Recovery

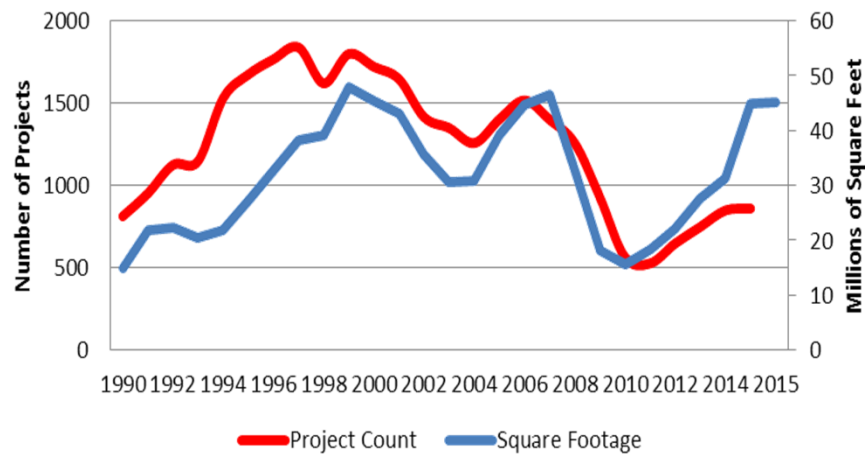


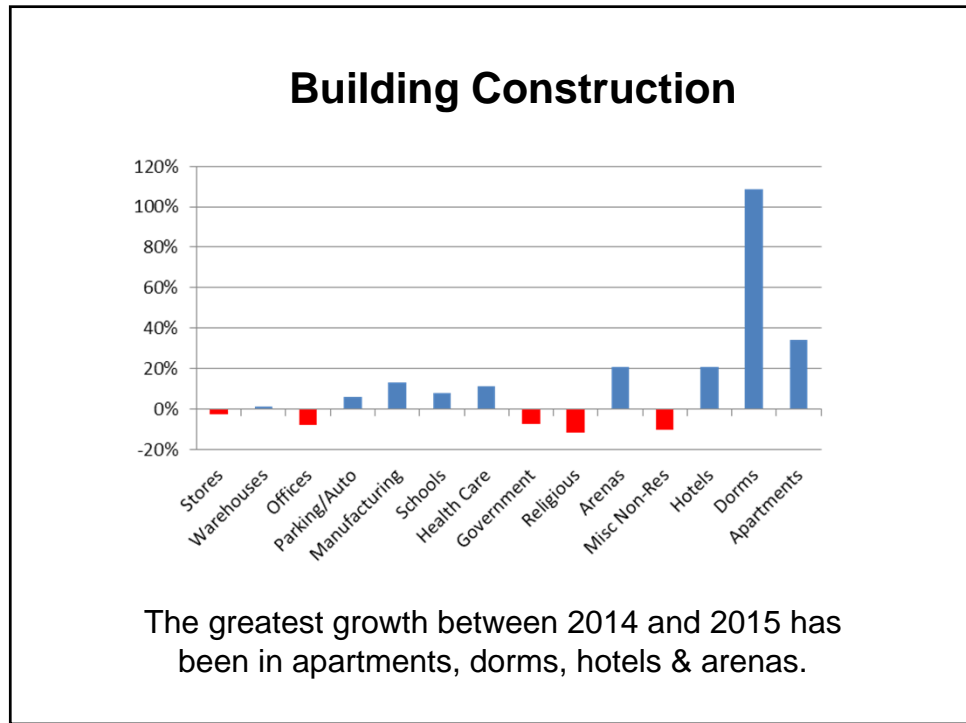
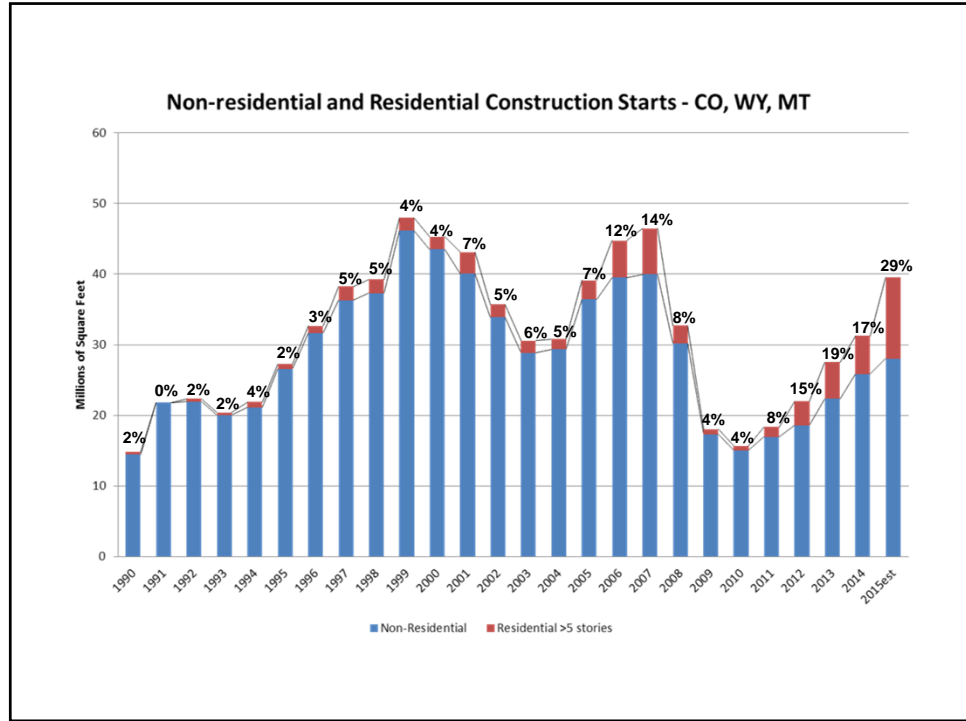
## Starts – Colorado, Montana, Wyoming



Regional Activity approaching Pre-recession Levels

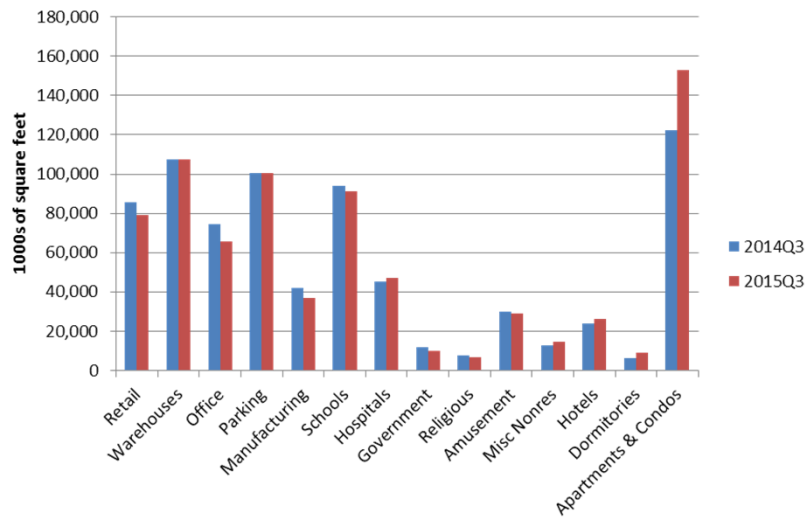
## CO-MT-WY Building Starts



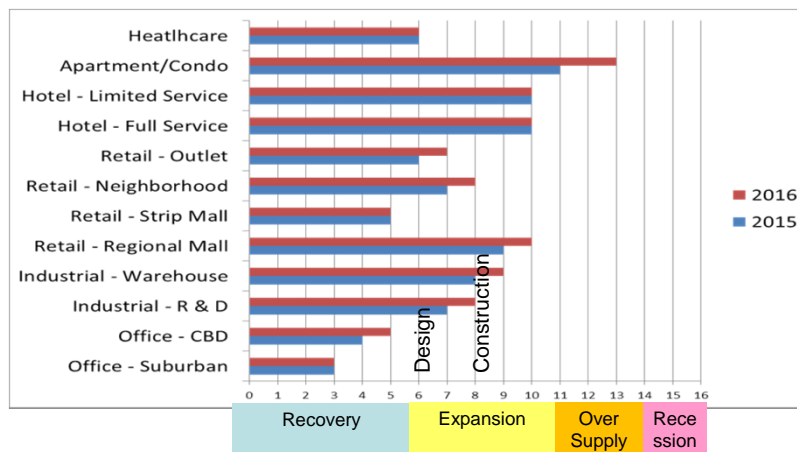


## Building Construction

2015Q1-Q3 compared to 2014Q1-Q3

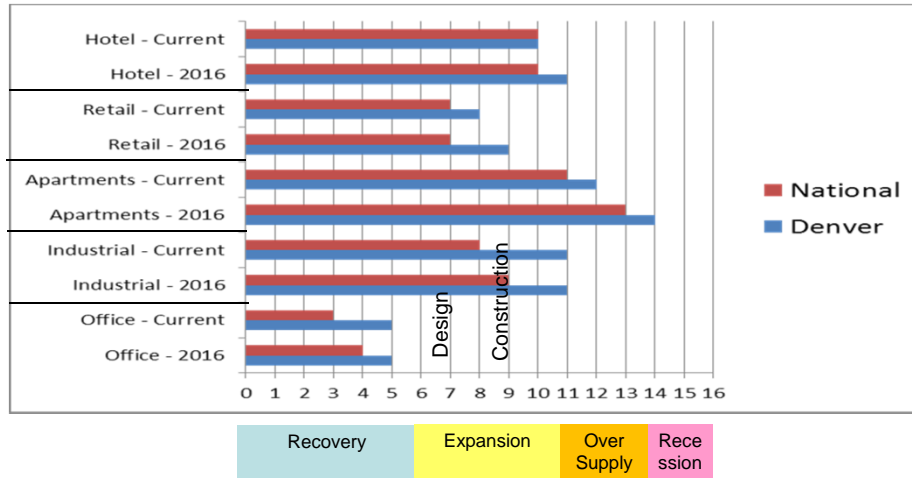


## National Momentum



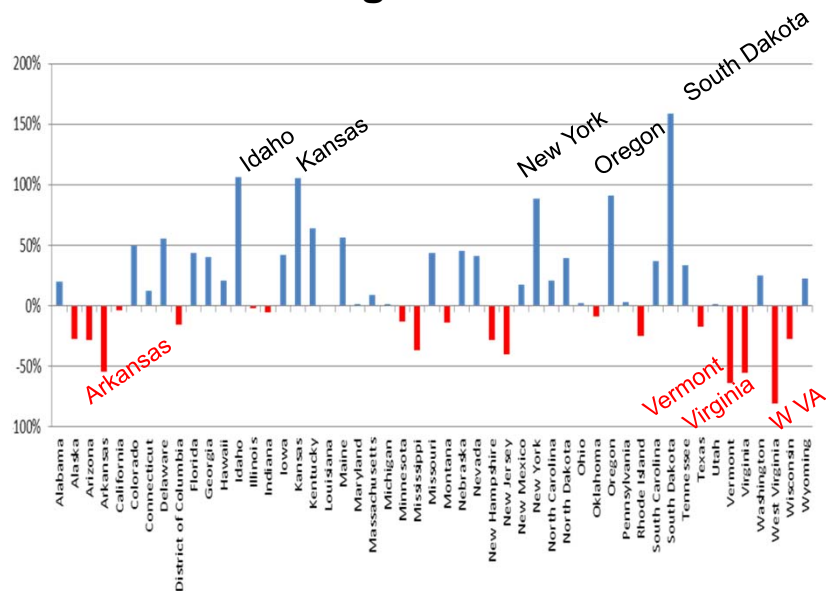
**Momentum for apartments is teetering on over-supply**

## Denver Momentum

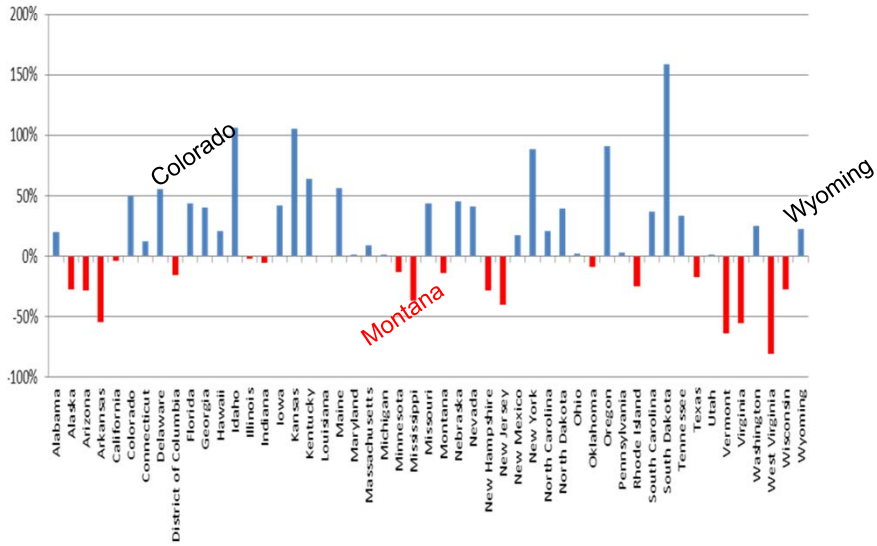


**Momentum for apartments is teetering on over-supply**

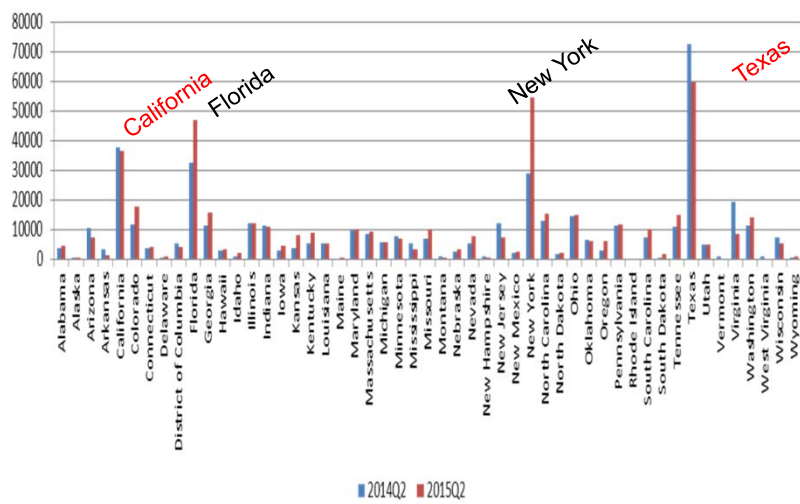
## Building Construction



## Building Construction

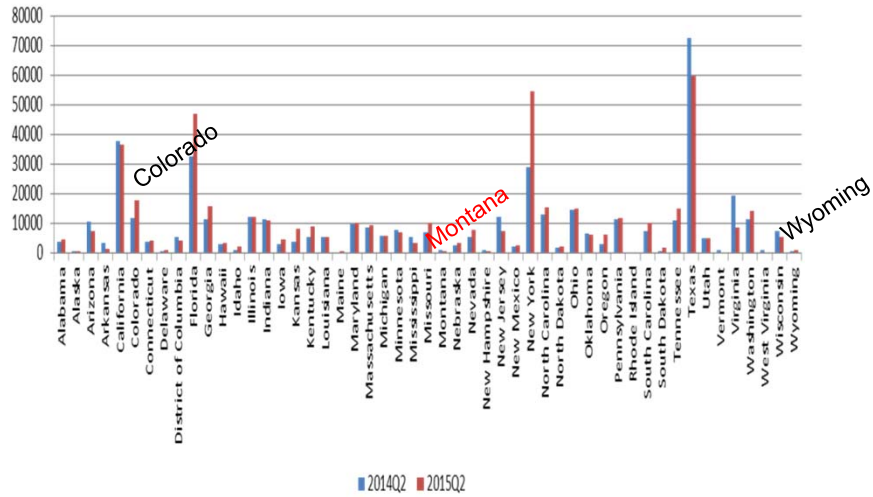


## Building Construction





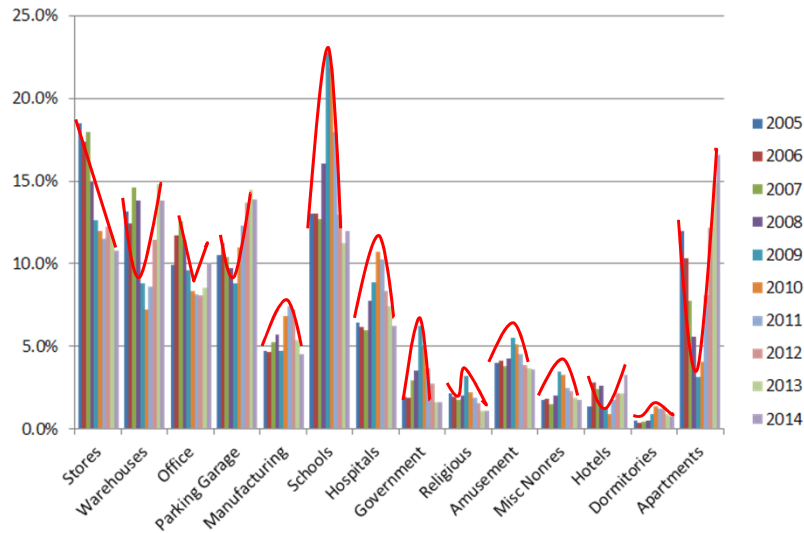
## Building Construction



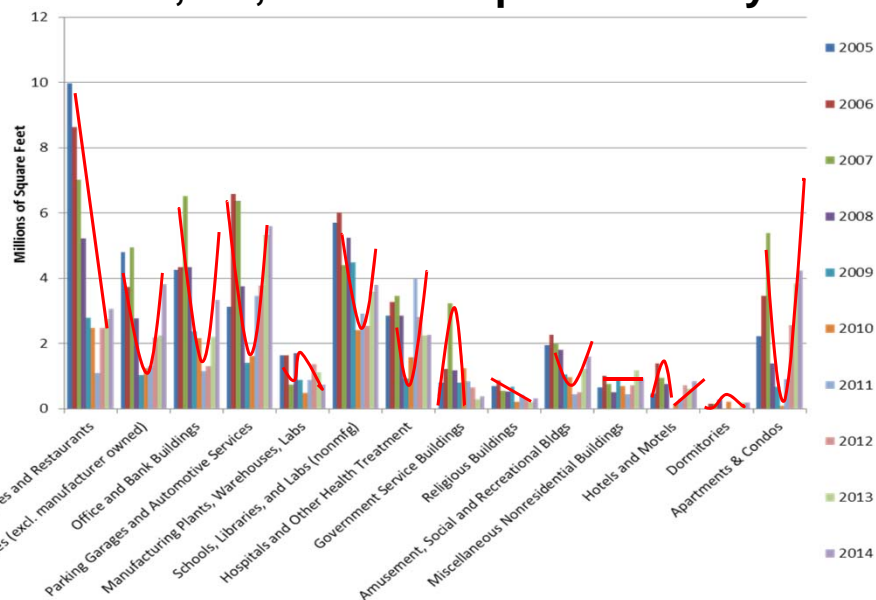
## Regional Momentum



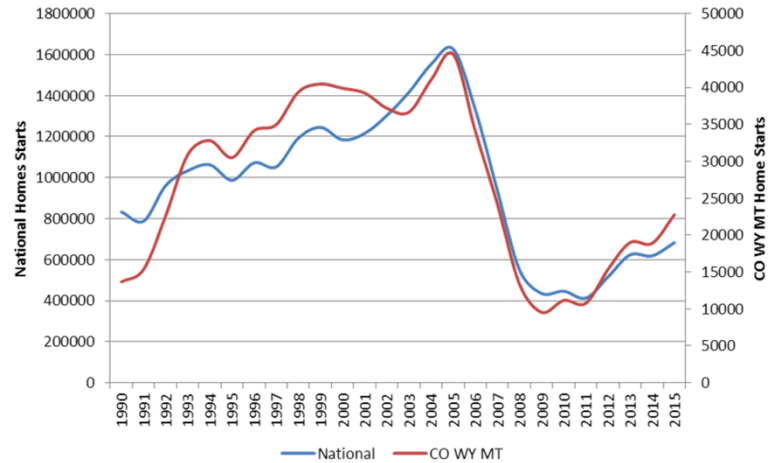
## Uneven National Marketplace Activity



## CO, MT, WY Marketplace Activity



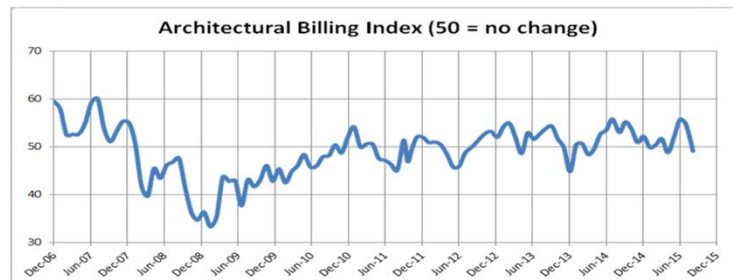
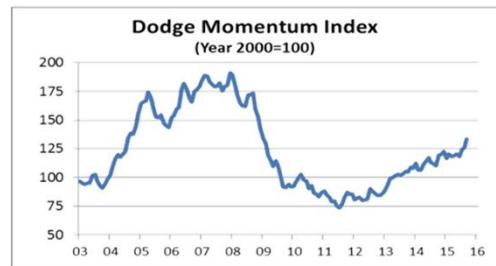
## Single Family Construction



**Market fell 75% from 2005 to 2010**  
**Growth but still down 52% from peak**

33

## Market Indicators



# Dodge Monthly Construction Starts

**DODGE DATA & ANALYTICS**

**Construction & Housing Review**

August 2015

**NEW CONSTRUCTION STARTS IN JULY HOLD STEADY**

Executive Office:  
Dodge Data & Analytics  
24 Crosby Drive, Suite 201  
Bedford, MA 01730  
Tel: 1-800-393-6462  
www.construction.com

**DODGE DATA & ANALYTICS**

**Construction & Housing Review**

September 2015

**NEW CONSTRUCTION STARTS IN AUGUST FALL 1.1 PERCENT**

Executive Office:  
Dodge Data & Analytics  
24 Crosby Drive, Suite 201  
Bedford, MA 01730  
Tel: 1-800-393-6462  
www.construction.com

**DODGE DATA & ANALYTICS**

**Construction & Housing Review**

October 2015

**NEW CONSTRUCTION STARTS IN SEPTEMBER SLIP 1.5 PERCENT**

Executive Office:  
Dodge Data & Analytics  
24 Crosby Drive, Suite 201  
Bedford, MA 01730  
Tel: 1-800-393-6462  
www.construction.com

**DODGE DATA & ANALYTICS**

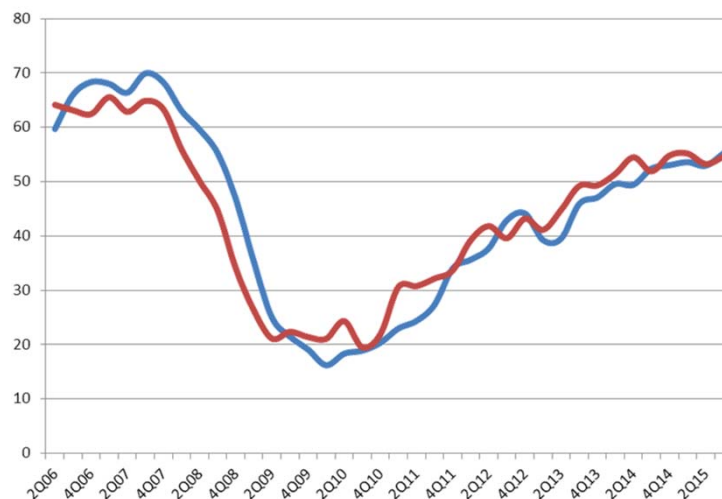
**Construction & Housing Review**

November 2015

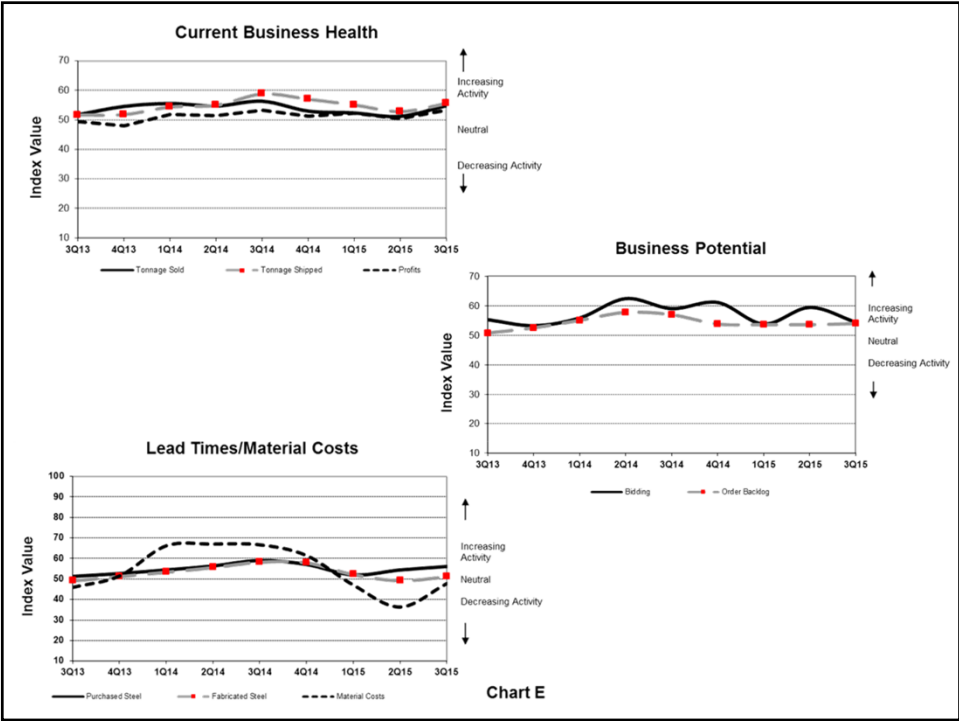
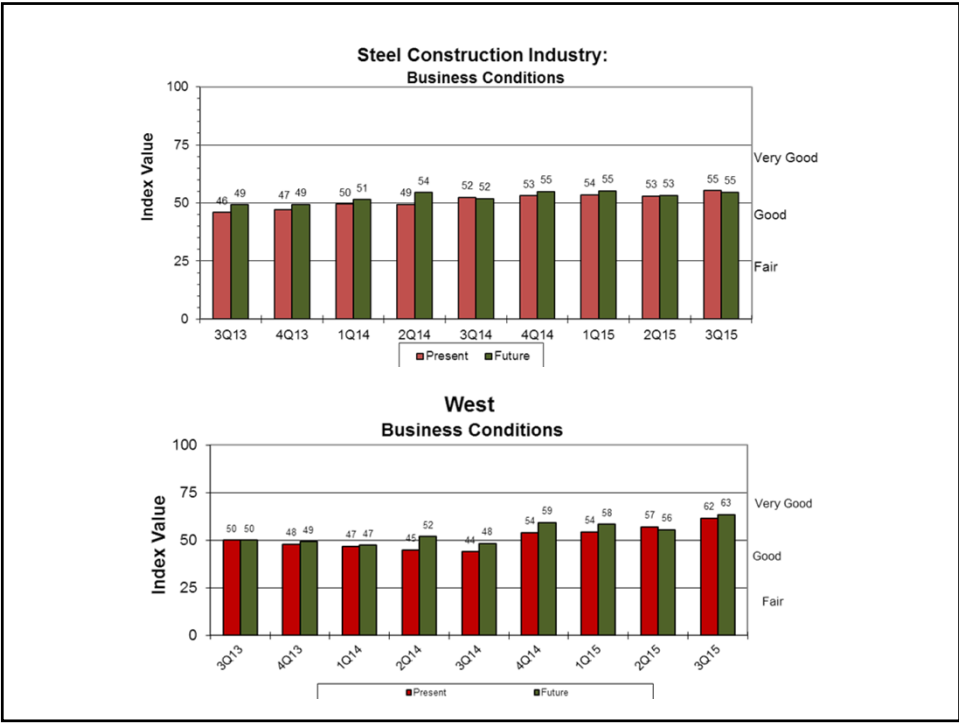
**NEW CONSTRUCTION STARTS IN OCTOBER SLIP 1.5 PERCENT**

Executive Office:  
Dodge Data & Analytics  
24 Crosby Drive, Suite 201  
Bedford, MA 01730  
Tel: 1-800-393-6462  
www.construction.com

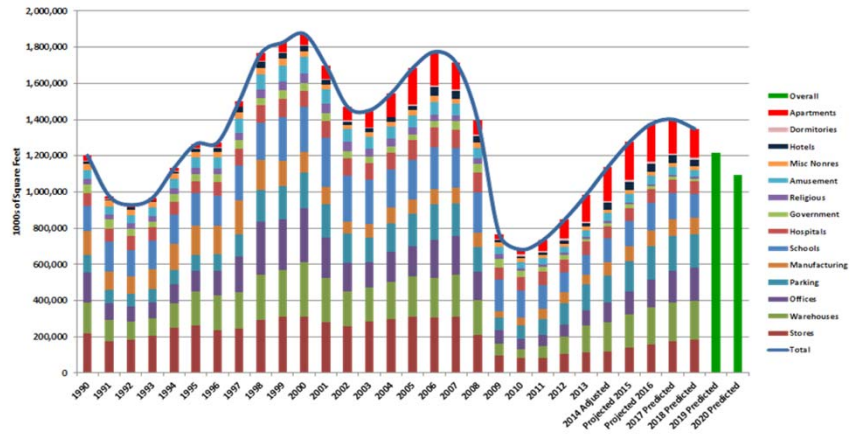
## Fabricator Optimism



Red over Blue = Optimism  
Blue over Red = Pessimism

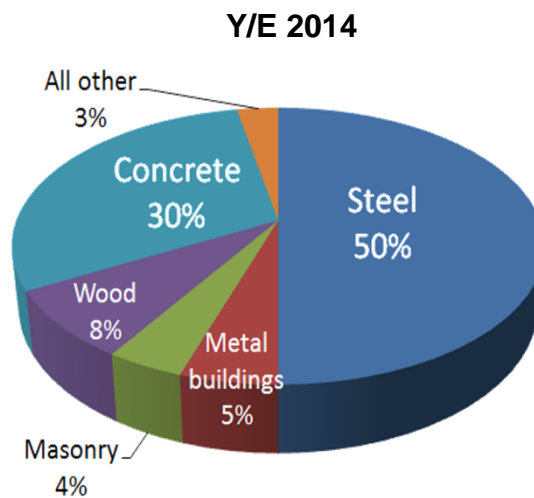


## Building Market Projections



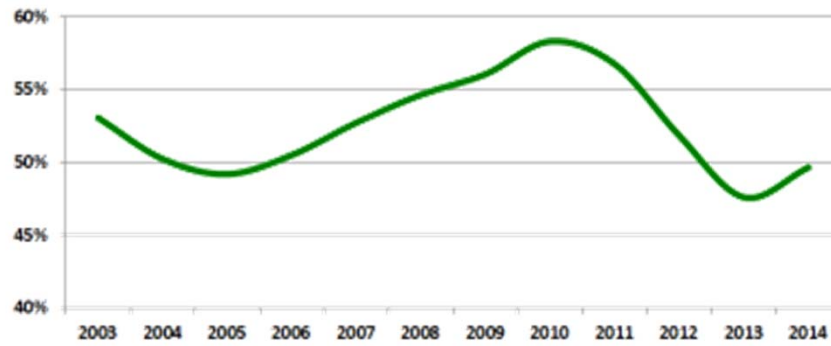
**2015 increase of ~~10~~% 5%**  
**2016 increase of 5%**  
**Peak in 2017 20% below 2006/2007**

## Structural Steel Market Share

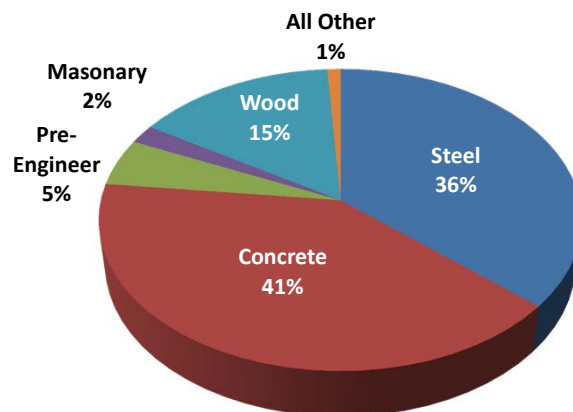




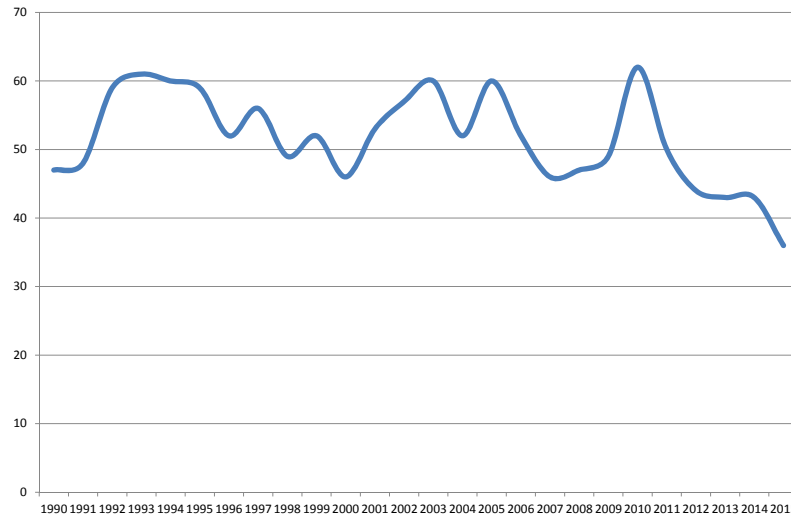
## Structural Steel Market Share



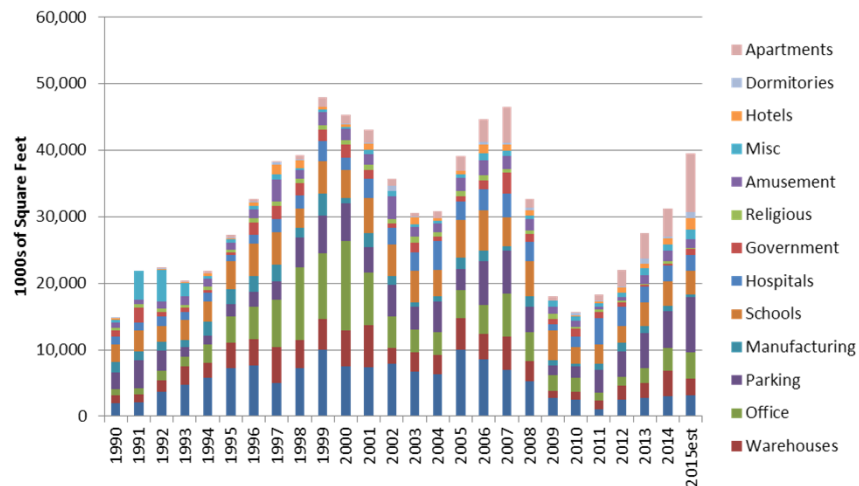
## Market Share – CO-MT-WY



## Structural Steel Share – CO-MT-WY



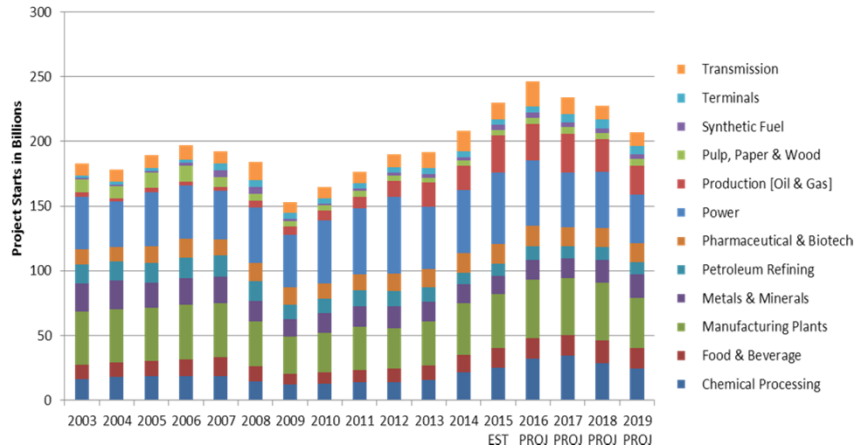
## CO-MT-WY Building Type Starts





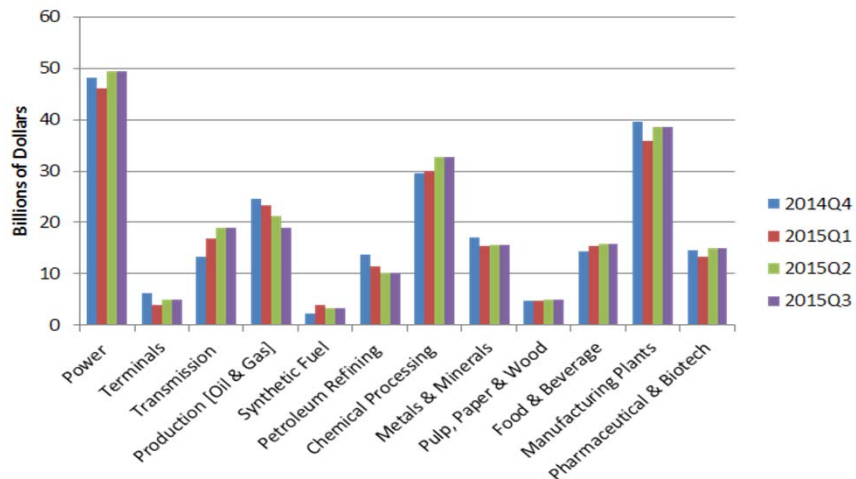
## Industrial Construction Market

National Industrial Project Starts

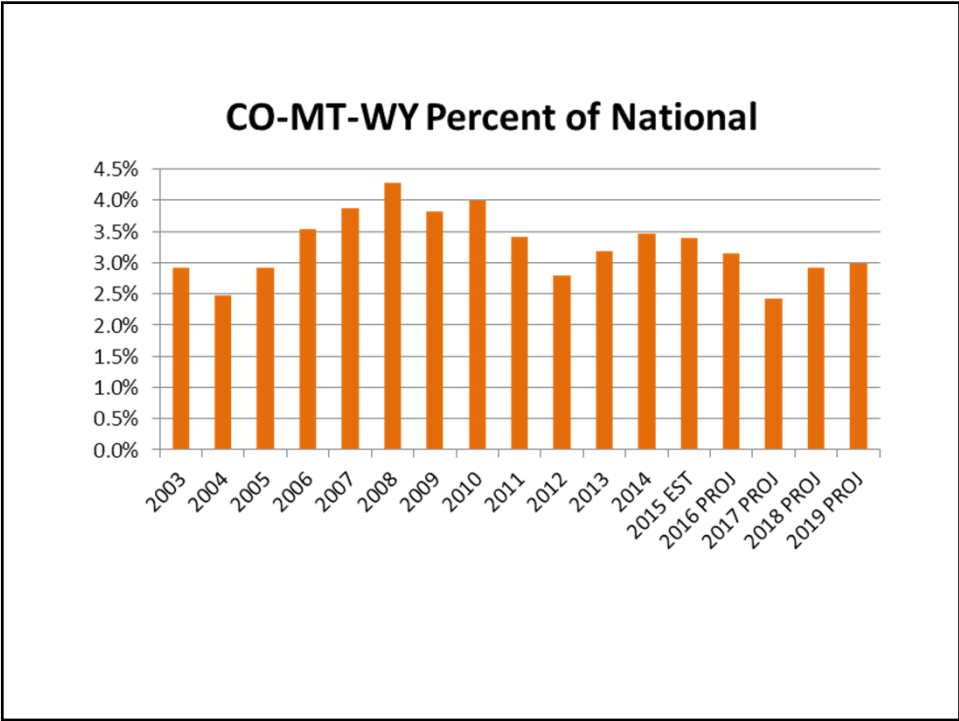
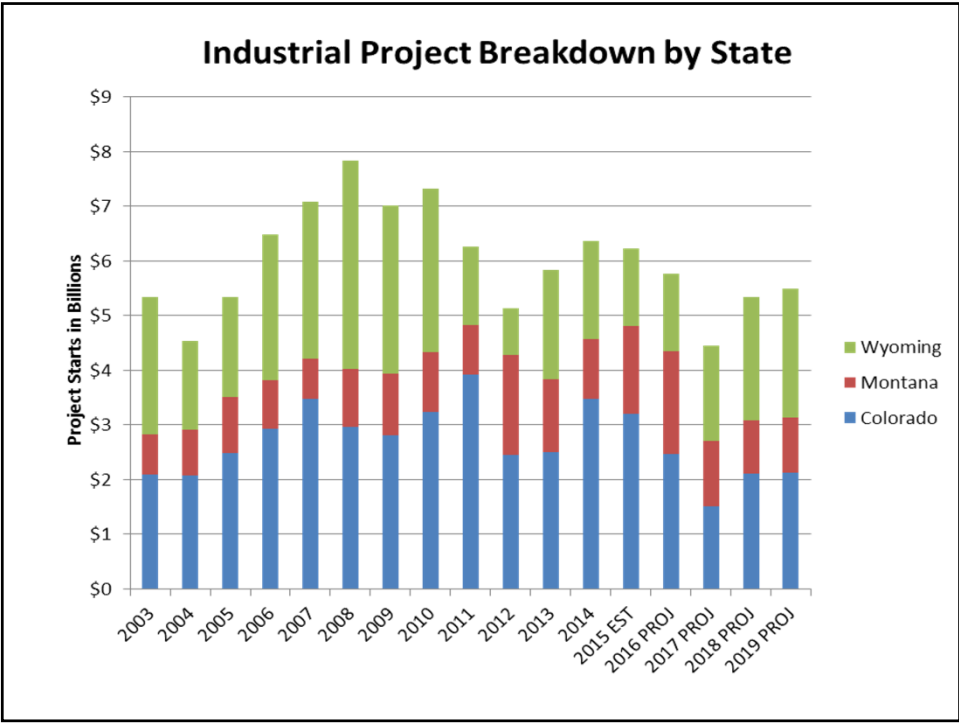


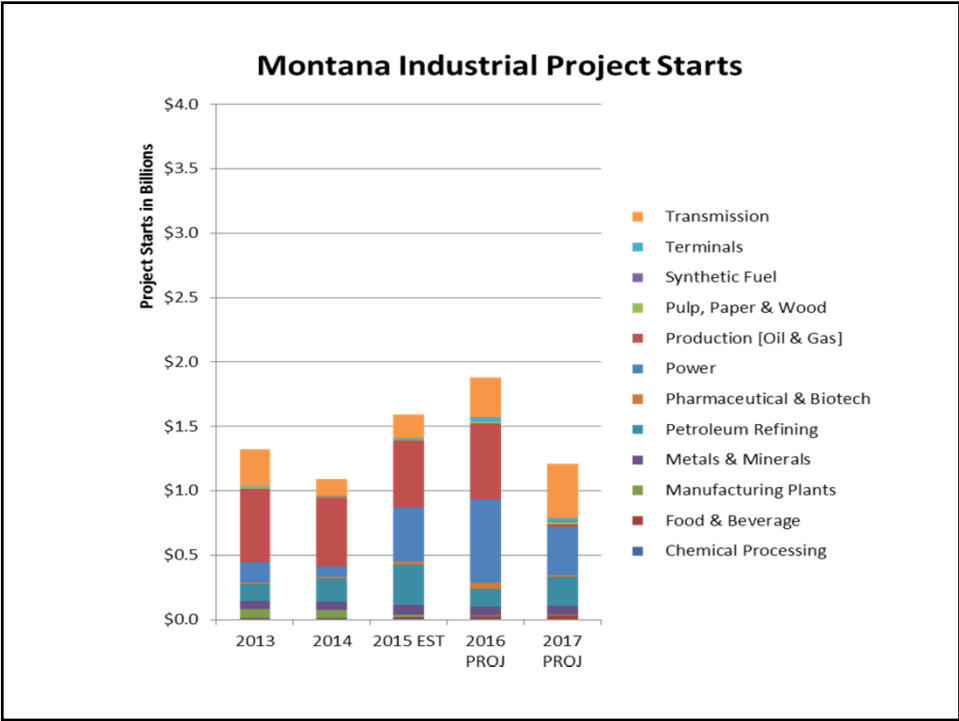
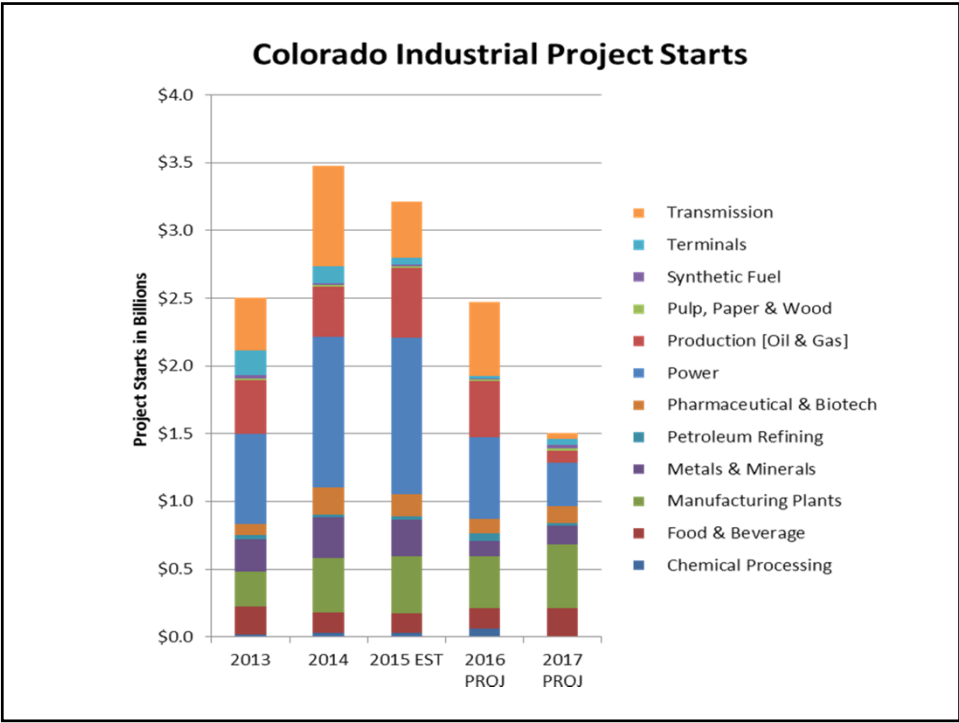
In spite of the dip in energy prices – activity up

## Industrial Construction Market

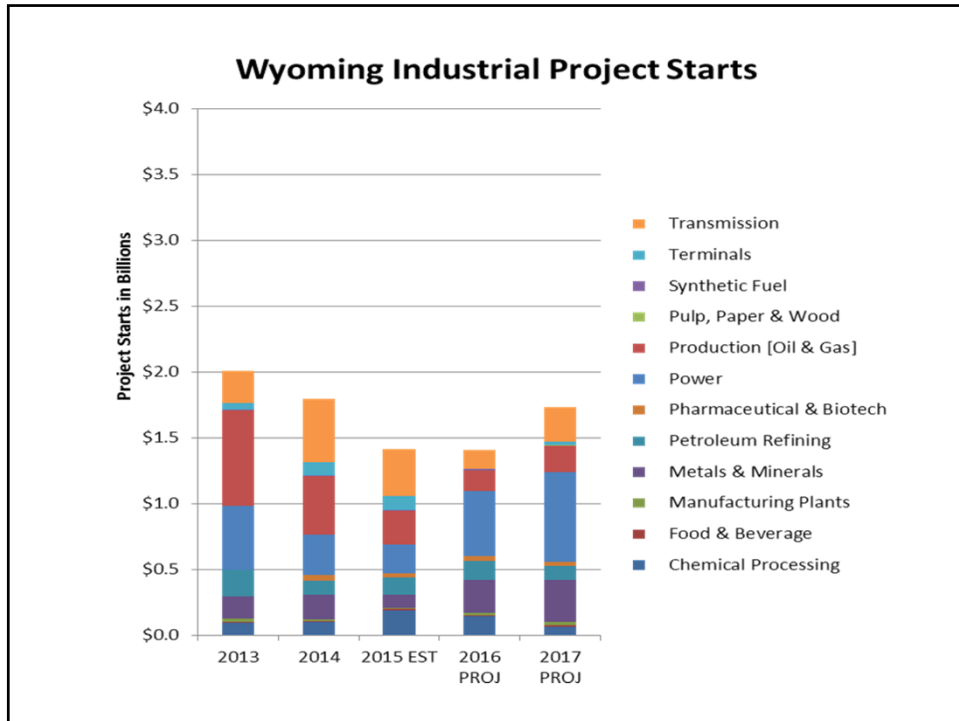


Uncertainty in forecasts









## So what does it all mean for CO-MT-WY?

**Multi-story residential**

**Flat to small decline**

**Non-residential**

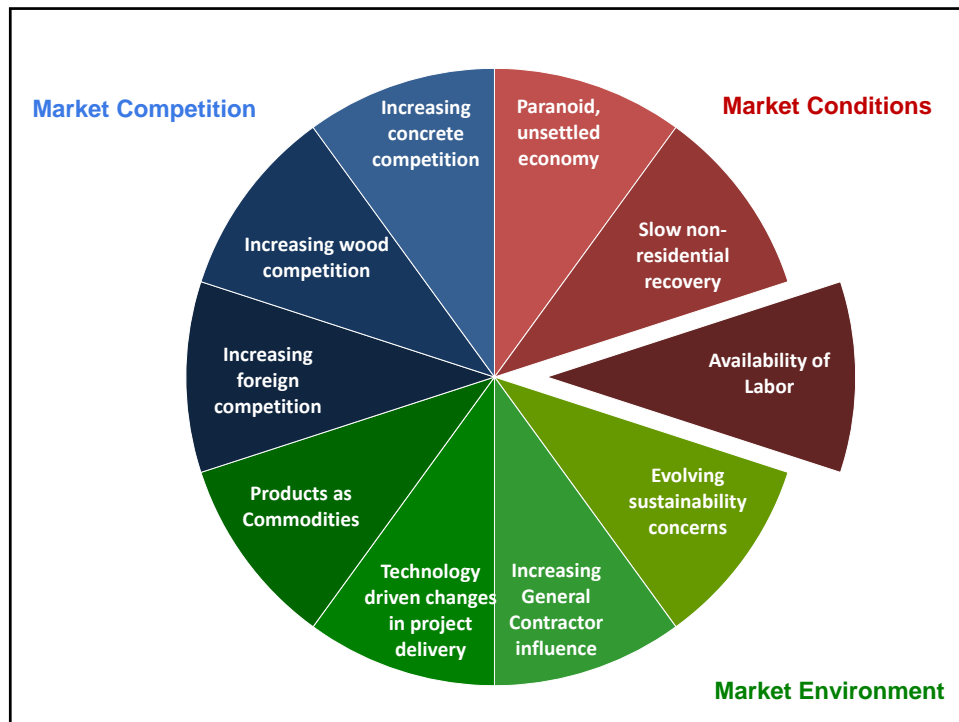
**Up 8% to 10%**

**Industrial**

**Down 10%**

**Infrastructure**

**Flat**



## Where Did All the Construction Workers Go?

Posted on [October 16, 2015](#)

### New Census Data on Job-to-Job Flows

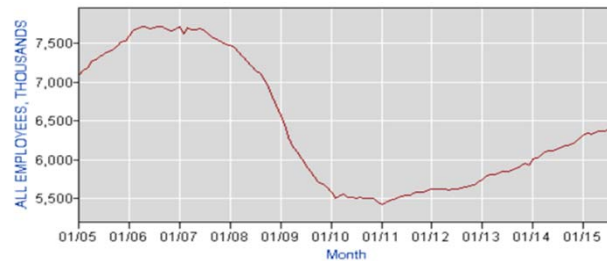
By Hubert Janicki and Erika McEntarfer  
US Census Bureau

Unfilled job openings in the construction industry have risen steadily since 2009. The rise follows a sharp fall due to the housing bust and the subsequent Great Recession. Anecdotally, many builders and contractors have reported difficulty finding new workers.

Specifically, we investigated the dynamics of worker flows in the construction industry in an attempt to examine some possible causes of this recent tightening in the labor market.

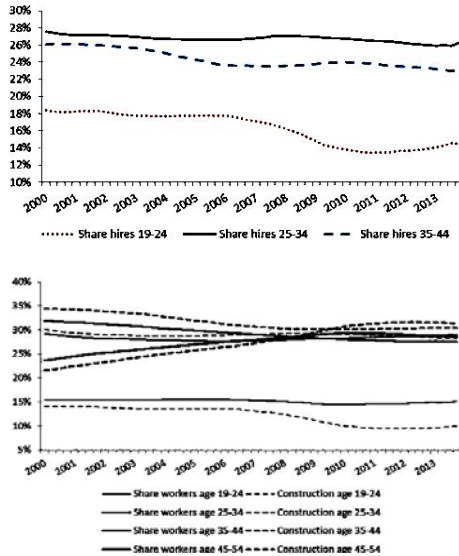
We find that **over 60 percent of construction workers displaced by the housing bust are employed in other industries or have left the labor market by 2013.**

We also find evidence of a **persistent drop in hiring of younger workers into construction jobs** over the last decade that is likely contributing to the current shortage of skilled workers in construction.



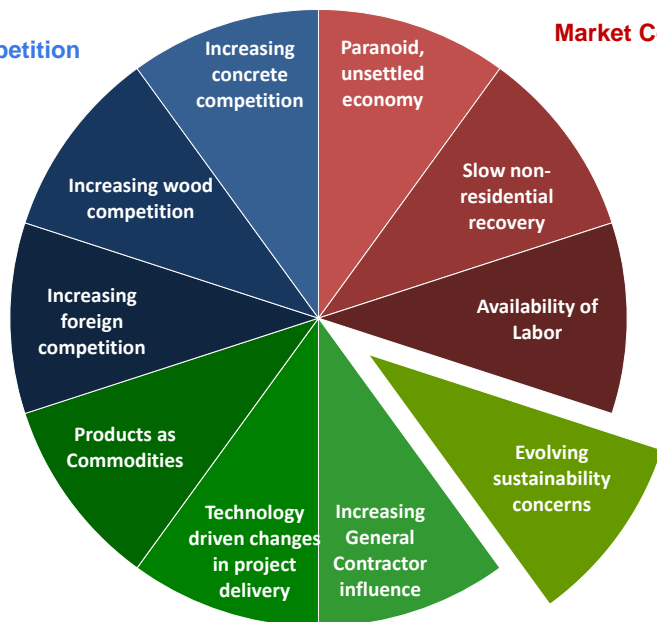
- Pre-Great Recession
  - Worker flow from manufacturing, mining, leisure/hospitality (50%) into construction
- Great Recession ----- 37% of jobs lost
- Post-Great Recession
  - 40% recalled
  - 35% left for another industry (transportation)
  - Typically to transportation or business services
  - 25% left labor force

## Lack of Young Worker Hiring



- Cost of training new workers
- Union desire to increase wages
- Willingness to work on short term basis
- Drug testing failure rates

## Market Competition



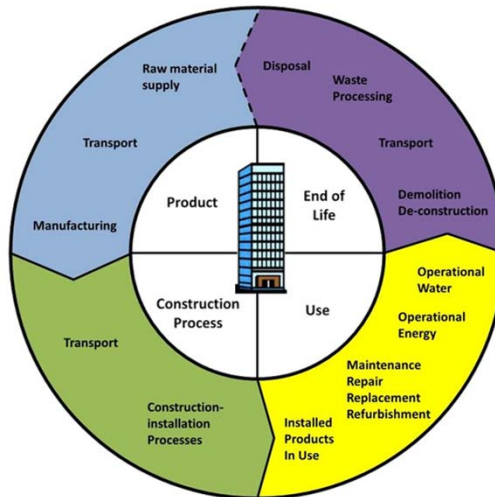
## Market Conditions

## Market Environment

# New Sustainability Requirements

A movie poster for the film "A Bridge Too Far". The poster features a collage of soldiers in various military uniforms and helmets, including British, American, and German soldiers. A large, intense explosion is depicted in the upper center. The title "A BRIDGE TOO FAR" is written in large, bold, white letters across the top. A small logo is visible in the top left corner.

## The Goal: Whole Building LCAs



## 81 Major Corporations--Including Google, Facebook, Coca Cola, General Motors--Sign WH Pledge to Back Global Climate Change Deal

By Mairead McArdle | October 20, 2015 | 5:21 PM EDT

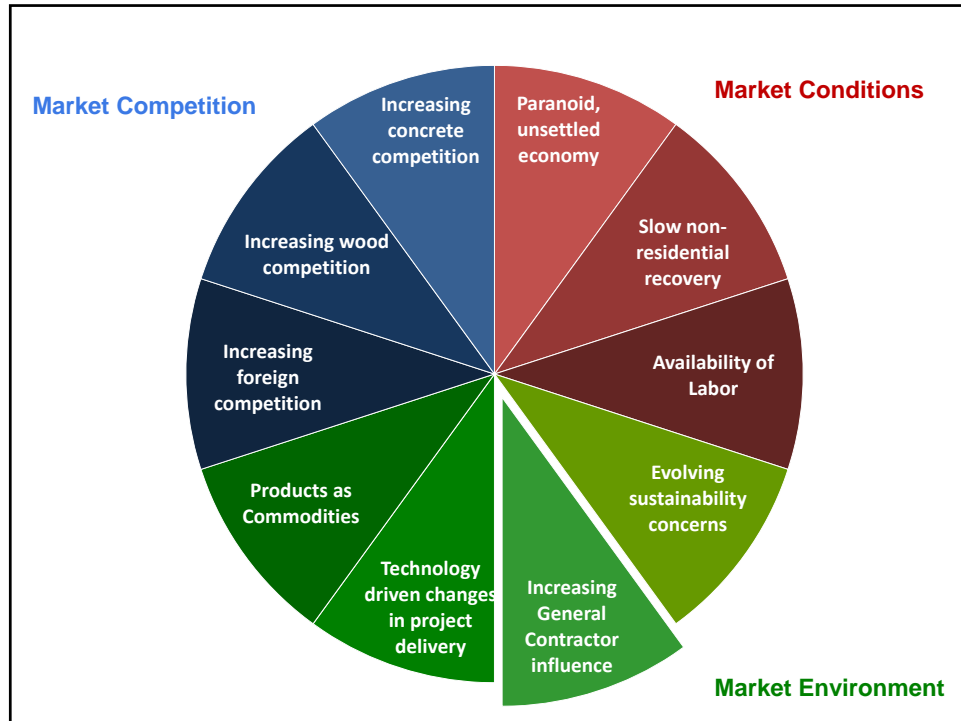
(CNSNews.com) –

Eighty-one major corporations with operations in the U.S.--including Google, Facebook, Apple, Coca Cola and General Motors--have taken a White House pledge "to demonstrate their support for action on climate change and the conclusion of a climate change agreement in Paris that takes a strong step forward toward a low-carbon, sustainable future."



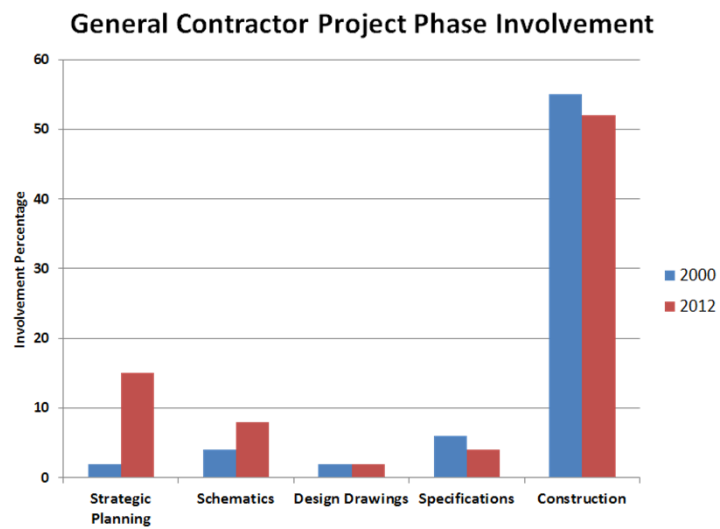
President Obama meets with top business leaders in the Roosevelt Room of the White House on Oct. 19, 2015. (AP photo)



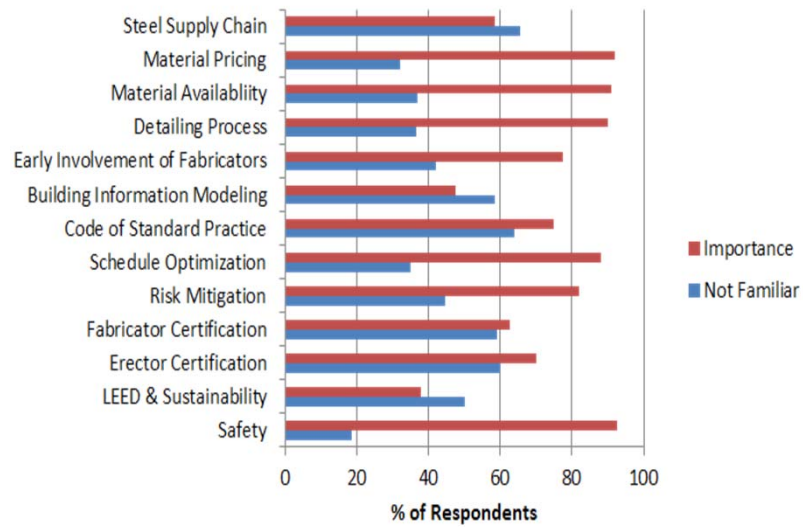




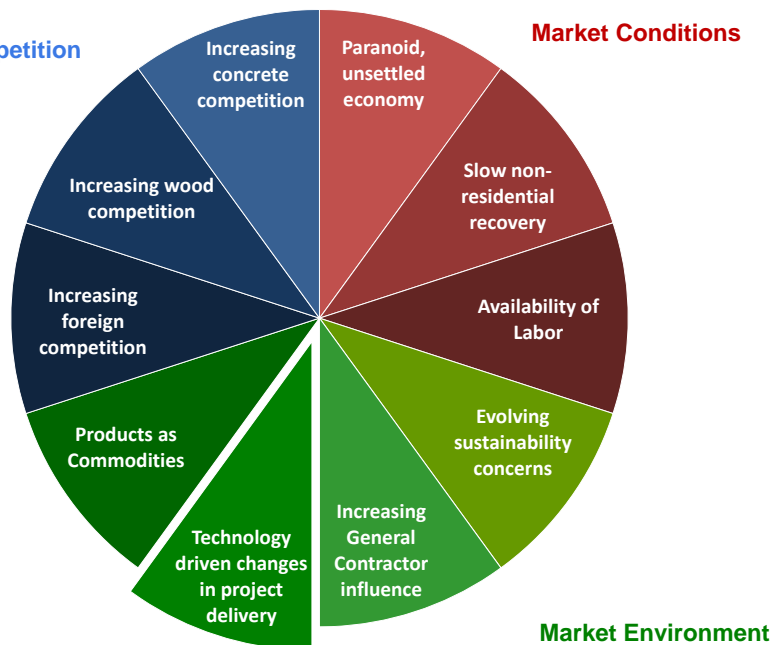
## Increasing GC Influence

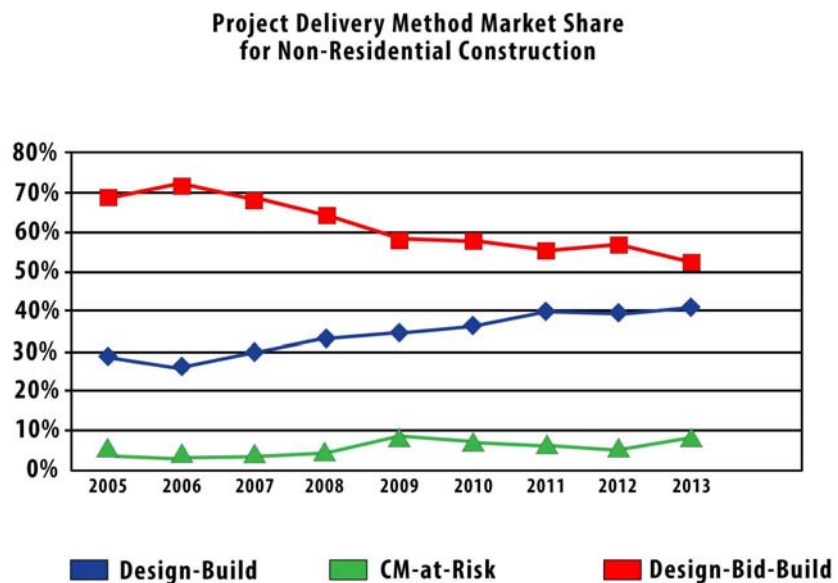
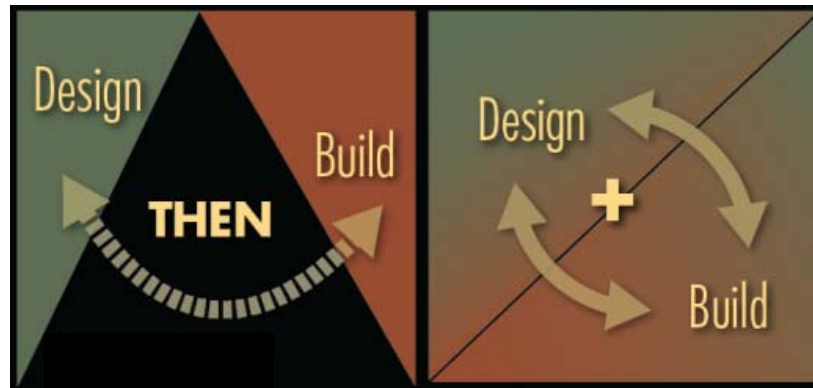


## Increasing GC Influence

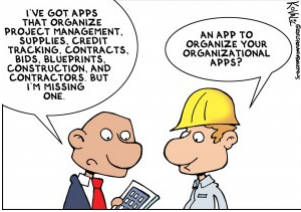


## Market Competition





*Analysis by RSMeans Market Intelligence a div. of Reed Construction Data*




I'VE GOT APPS THAT ORGANIZE PROJECT MANAGEMENT, SUPPLIES, CREDIT, TRACKING, CONTRACTS, BIDS, BLUEPRINTS, CONSTRUCTION, AND CONTRACTORS. BUT I'M MISSING ONE.

AN APP TO ORGANIZE YOUR ORGANIZATIONAL APPS?

ARCHITECTURE, ENGINEERING & CONSTRUCTION

## END-TO-END COLLABORATION ENABLED BY BIM LEVEL 3

An Industry Approach Based on Best Practices from Manufacturing

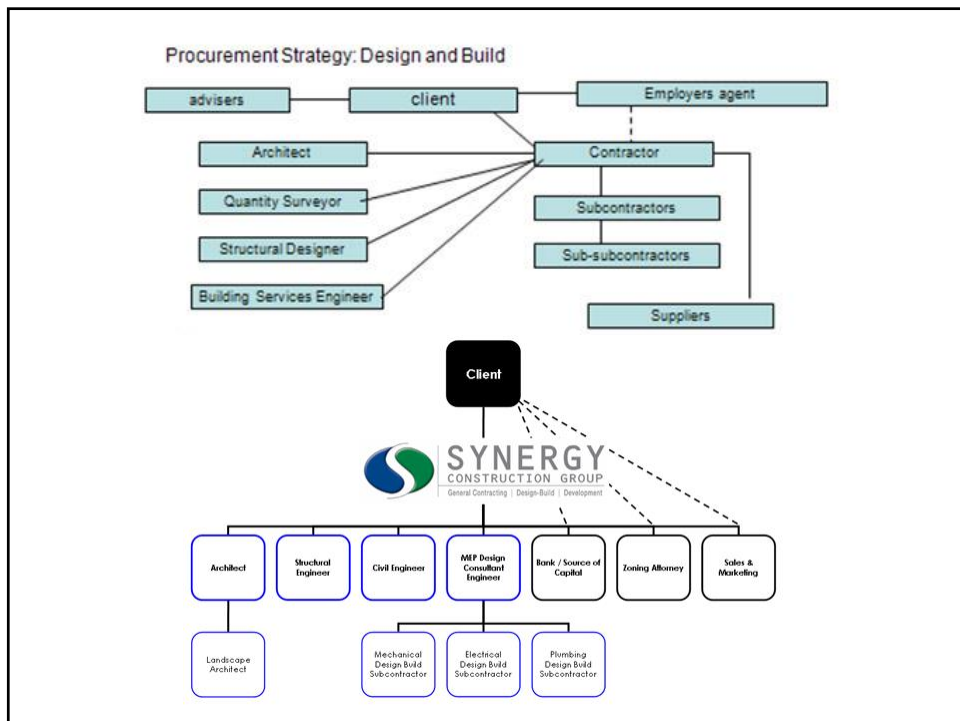


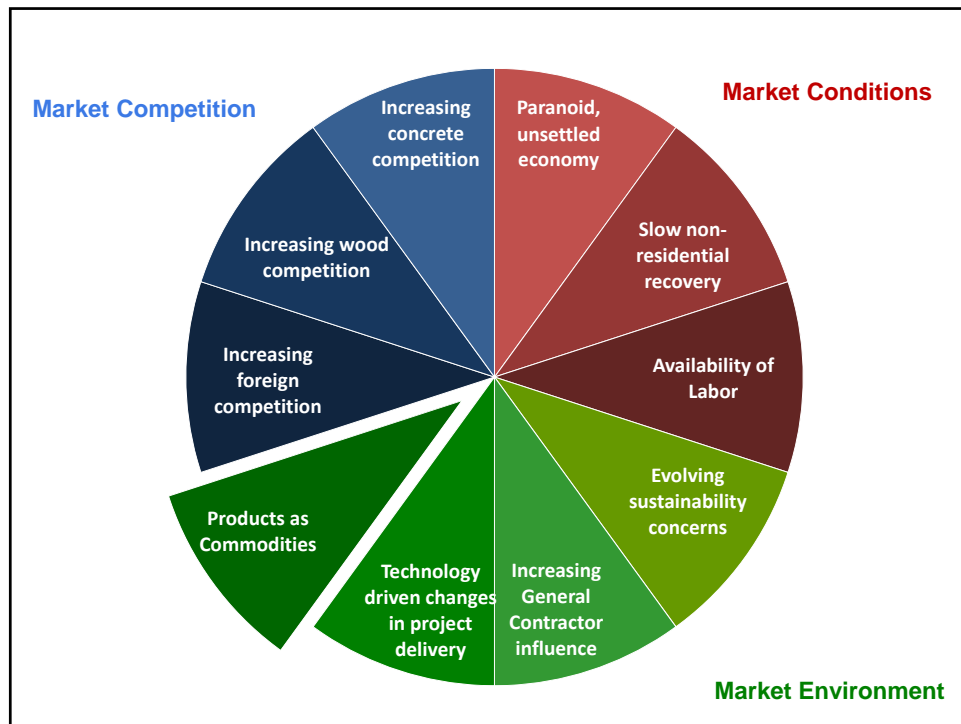
### SUMMARY

Industrialization techniques have been commonly used in Manufacturing industries for decades. Now the use of **Industrialized Construction** is expanding in the Architecture, Engineering & Construction industry to help improve planning, design, construction, and assembly for increased sustainability, optimized operations, lower costs, and greater safety.

With the growing adoption of **Building Information Modeling (BIM)**, companies can further benefit by implementing a **Building Lifecycle Management (BLM)** system. BLM puts into practice a BIM Level 3 approach that enables a highly efficient **Extended Collaboration** model based on Product Lifecycle Management (PLM) and Manufacturing industry best practices.

Dassault Systèmes **3DEXPERIENCE** platform applications can be part of an integrated Extended Collaboration process, bringing together all project design and delivery elements for a productive workflow.





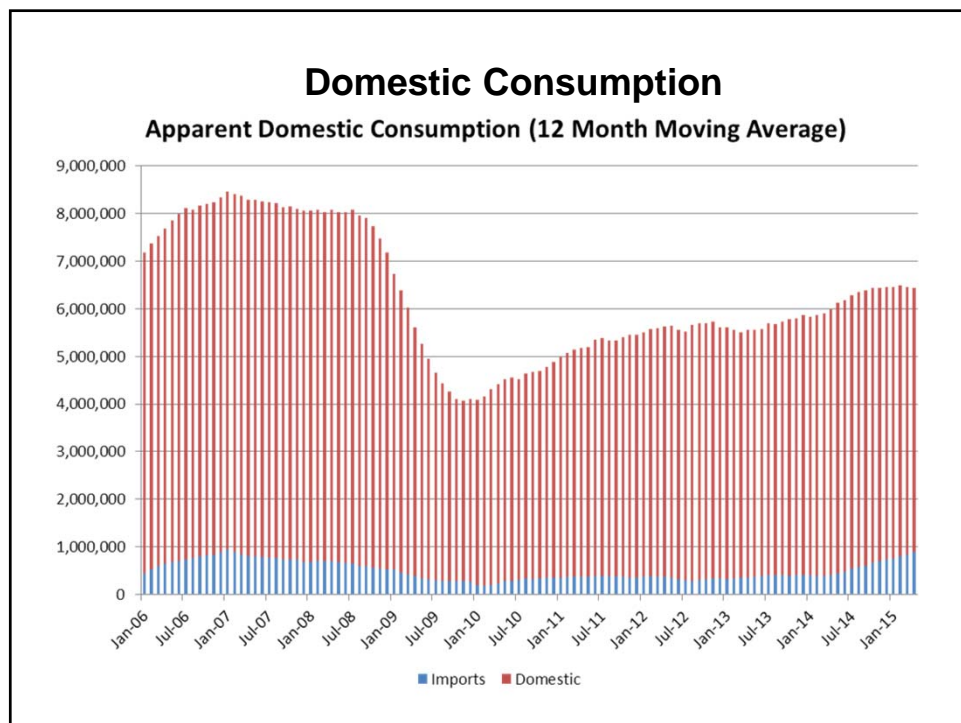
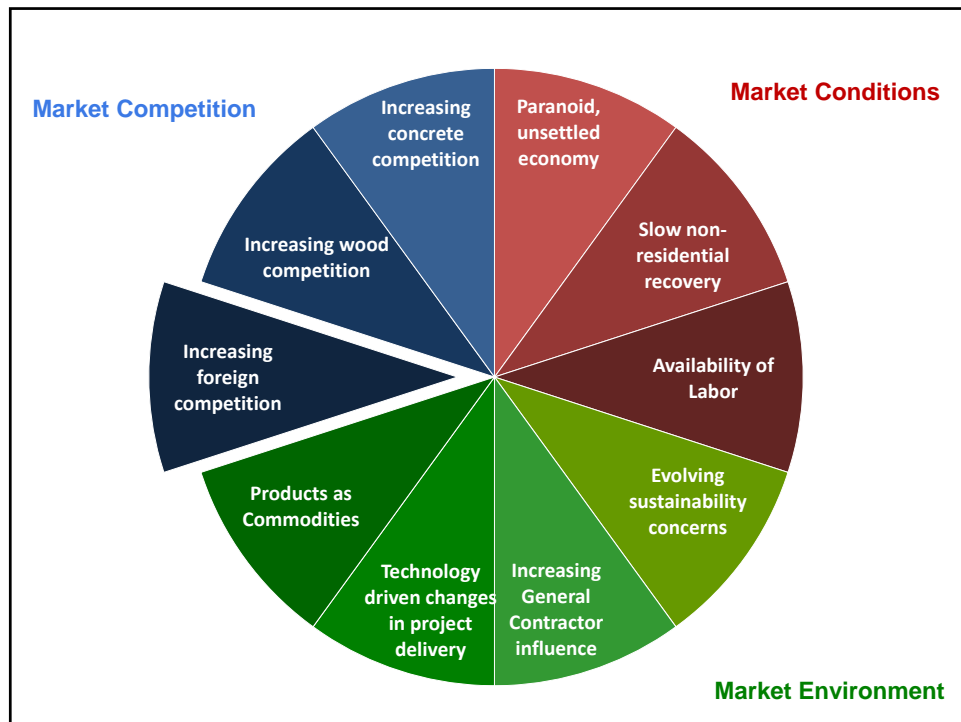


**Fabricated steel is not a commodity.**

**Fabricated steel is a specialty product.**



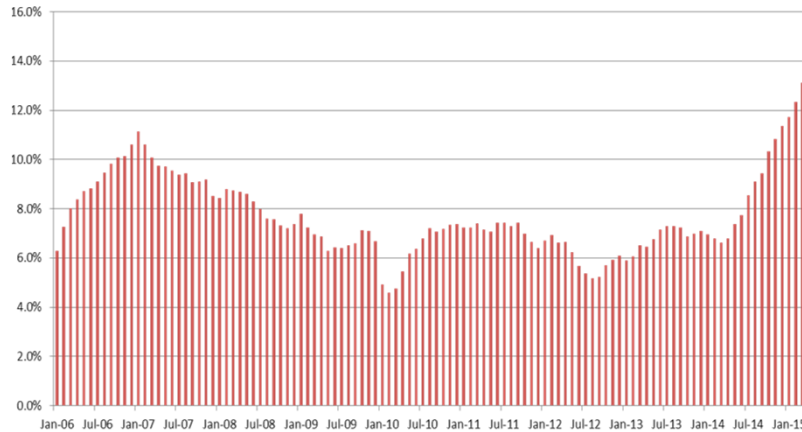
**The key is the expertise of the fabricator.**





## Domestic Consumption

Import Percentage of Domestic Consumption (12 month moving average)



### Ask AISC

#### Category: Other

First Name: Ping  
Last Name: ZHONG  
Email Address: [zhongping@gmail.com](mailto:zhongping@gmail.com)  
Company: The Embassy of P.R. China in USA  
Street: 3505 International Pl. NW.  
City: washington  
State: District of Columbia  
Zip Code: 20008  
Work Phone: [2024952242](tel:2024952242)  
Fax:  
Date: 10/19/2015 12:09:41

What perspective are you asking the question?

Other

Enter your question below:

Dear AISC, I'm a Chinese diplomat in Washington DC, and I recently want to know more about the steel framed construction in US, and your organization and your website provided many useful information. In general, I'd like to know the answers to the following: 1- The history and current status of steel framed building in the US, percentage of steel framed buildings in all buildings, the relationship between the development of the steel framed buildings and the domestic production of steel? 2- The Economic character of the steel framed building in US, comparing with the concrete building for instance. The cost of steel framed building during design, construction and maintenance period? What are the requirements on the steel performance, and how much steel needed on average for typical unit of the building? 3- The technical standards, fire and earthquake standards about steel framed buildings in US. If the questions above are too general, would you please let me know where I can find the statistics on the current share of the steel-framed buildings? Your website provided some info ( <https://www.aisc.org/content.aspx?id=3800> on the Market Size and Growth), where I can find more details with historic data over the years? Moreover, I noticed that there's one section called "Structural Steel today" in your "Designing with Structural Steel- A guide for Architects", where can I get a copy of the chapter? Thanks you so much for your help. Best, Ping ZHONG Tel: [2024952242](tel:2024952242) Fax: [2023634870](tel:2023634870) Email: [zhongping@gmail.com](mailto:zhongping@gmail.com) Add: 3505 International Place N.W., Washington D.C. 20008

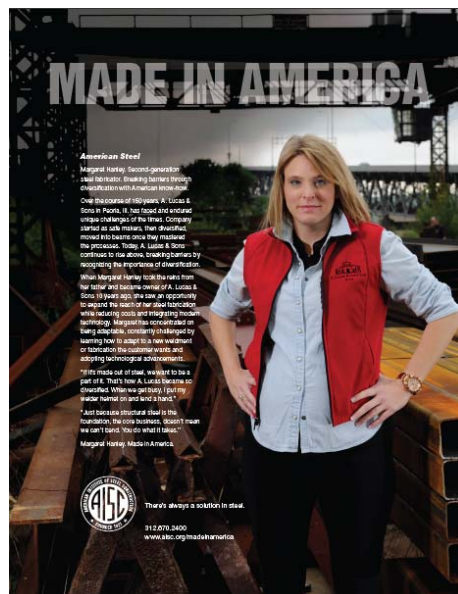
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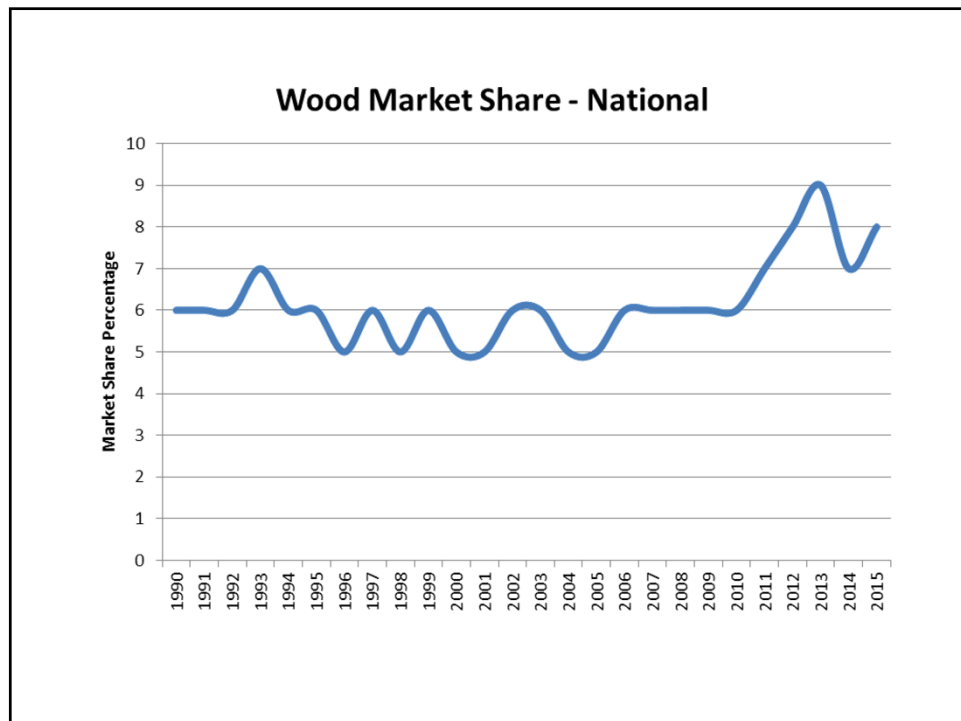
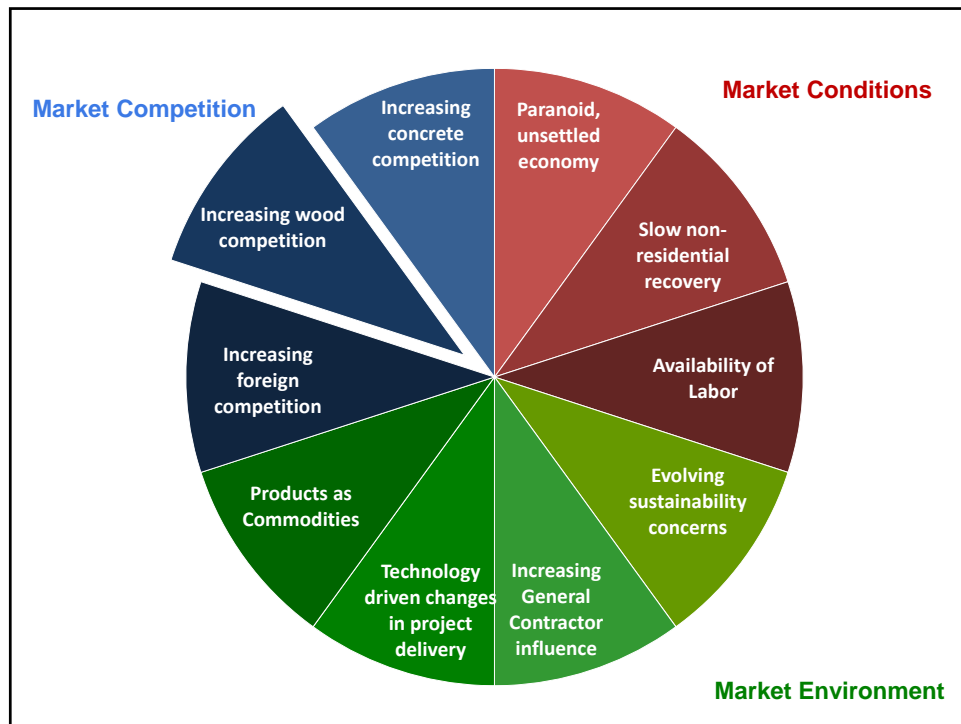
I'd like to know the answers to the following: 1- The history and **current status of steel framed building in the US**, **percentage of steel framed buildings in all buildings**, the relationship between the development of the steel framed buildings and the **domestic production of steel**? 2- The Economic character of the steel framed building in US, comparing with the concrete building for instance. **The cost of steel framed building during design, construction and maintenance period**? What are the requirements on the steel performance, and **how much steel needed** on average for typical unit of the building? 3- The technical standards, fire and earthquake standards about steel framed buildings in US. If the questions above are too general, would you please let me know where I can find the statistics on the **current share of the steel-framed buildings**?

Thanks you so much for your help.

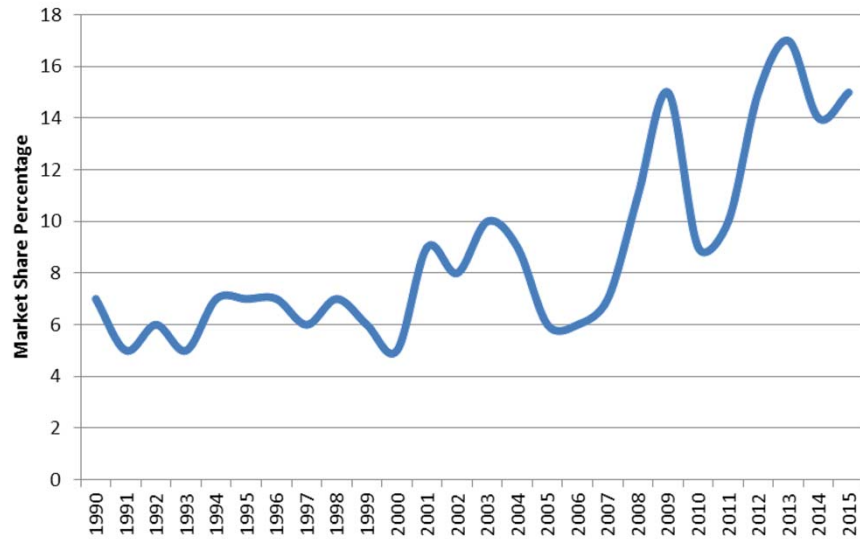
Best, Ping ZHONG



**The key is the expertise of the fabricator.**



## Wood Market Share - CO, WY, MT

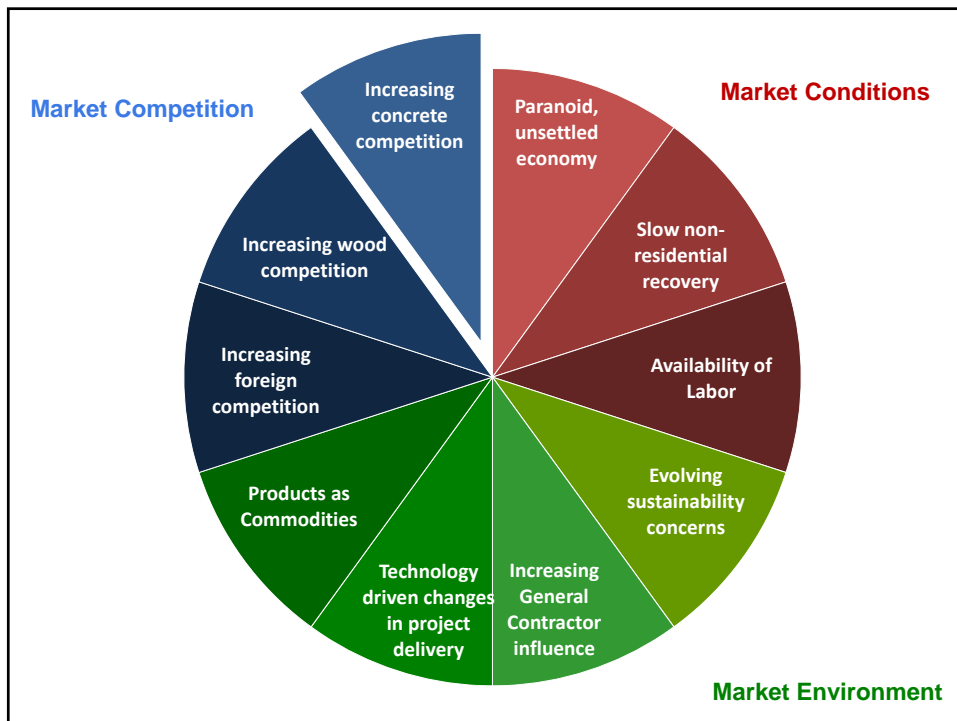


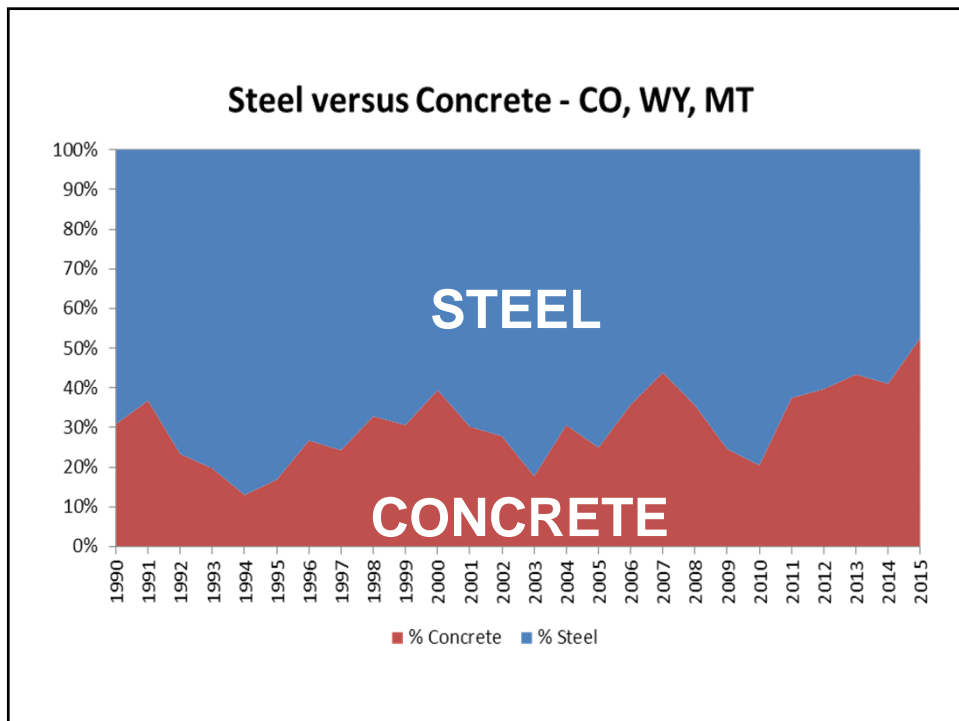
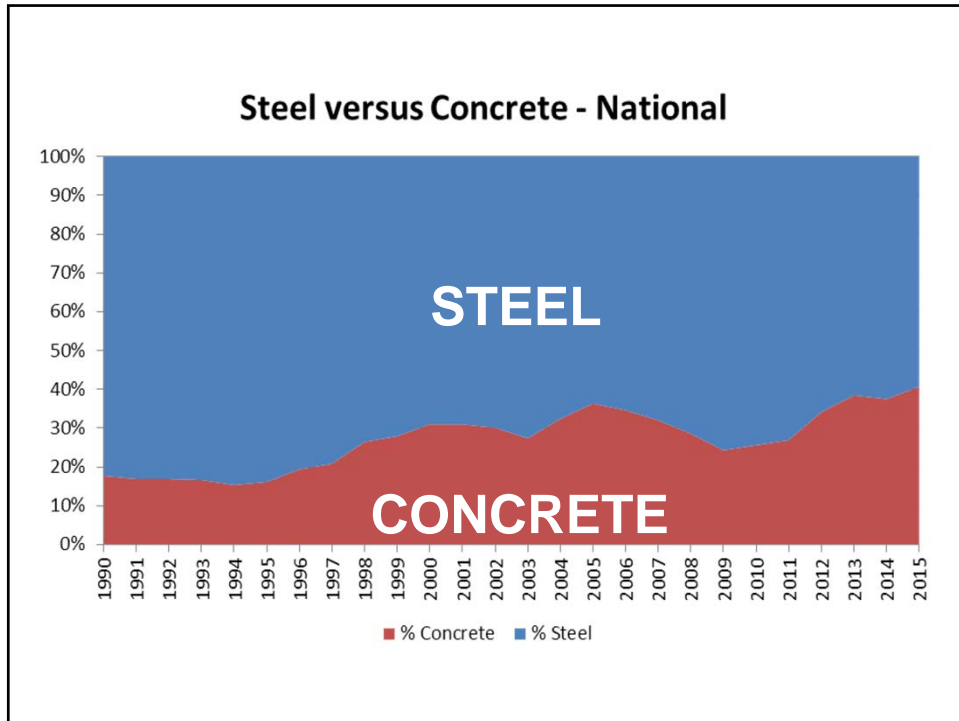
### U.S. Tall Wood Building Prize Competition Winners Revealed

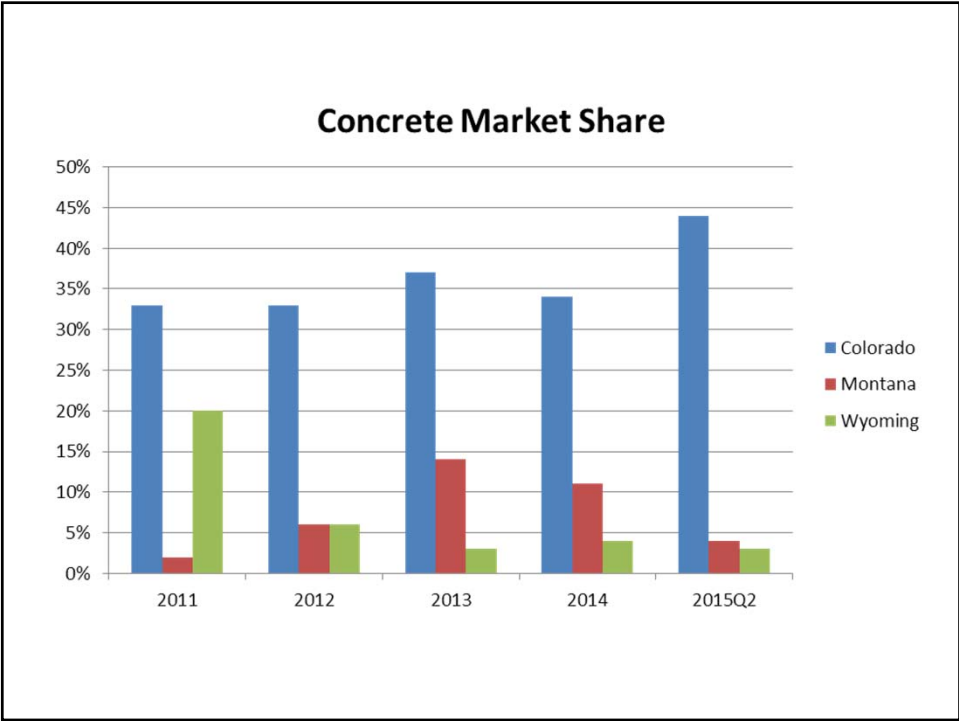
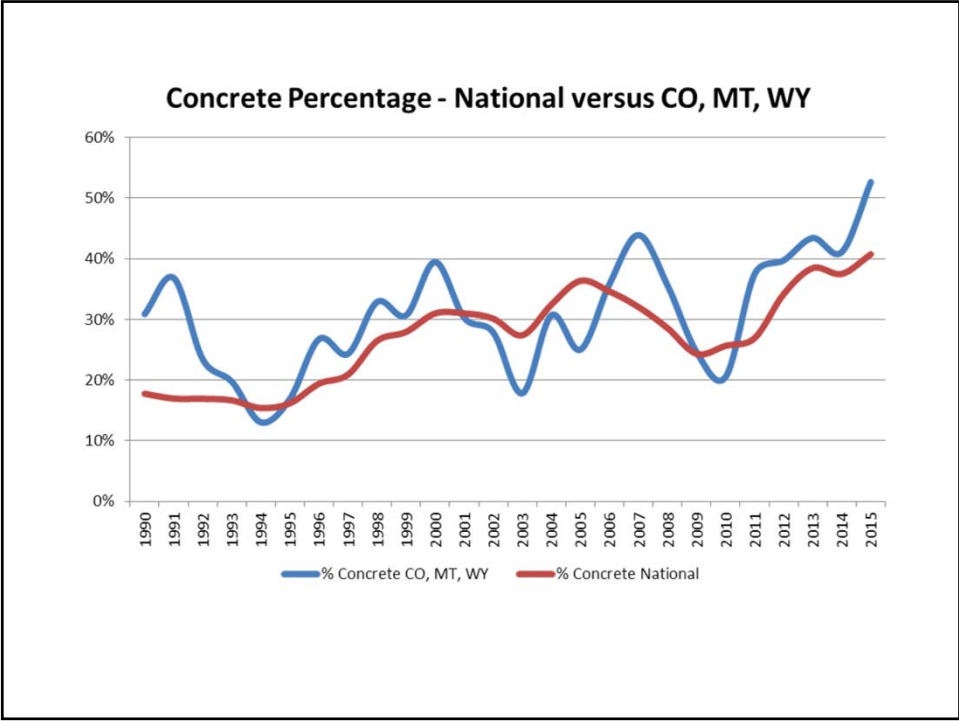
*USDA and Softwood Lumber Board award \$3 million to support tall wood demonstration projects in New York and Portland, Oregon*

**Washington, D.C. — September 17, 2015** — Today, U.S. Secretary of Agriculture Tom Vilsack, in partnership with the Softwood Lumber Board and the Binational Softwood Lumber Council, announced the winners of the U.S. Tall Wood Building Prize Competition. The two winning development teams were granted a combined \$3 million in funding to support the development of tall wood demonstration projects in New York and Portland, Oregon.

At the International Code Council Board of Director's (ICC-BOD) meetings one agenda item was entitled "AWC Tall Wood Ad-Hoc Committee Proposal". Only the ICC BOD had a copy of this proposal. This proposal was brought before the BOD at the request of the American Wood Council (AWC) as part of an overall proposal to both have ICC BOD establish an ad-hoc committee and to also fund same at an estimated cost of **\$200,000**. The focus of the proposal appears to be to assess this 'new technology', on such topics as **heights and areas, construction types, fire, means of egress, structural**, etc. The initial concept is to have an ad-hoc committee complete their work in time for the **2021 code cycle** (2018-2020 three year cycle).



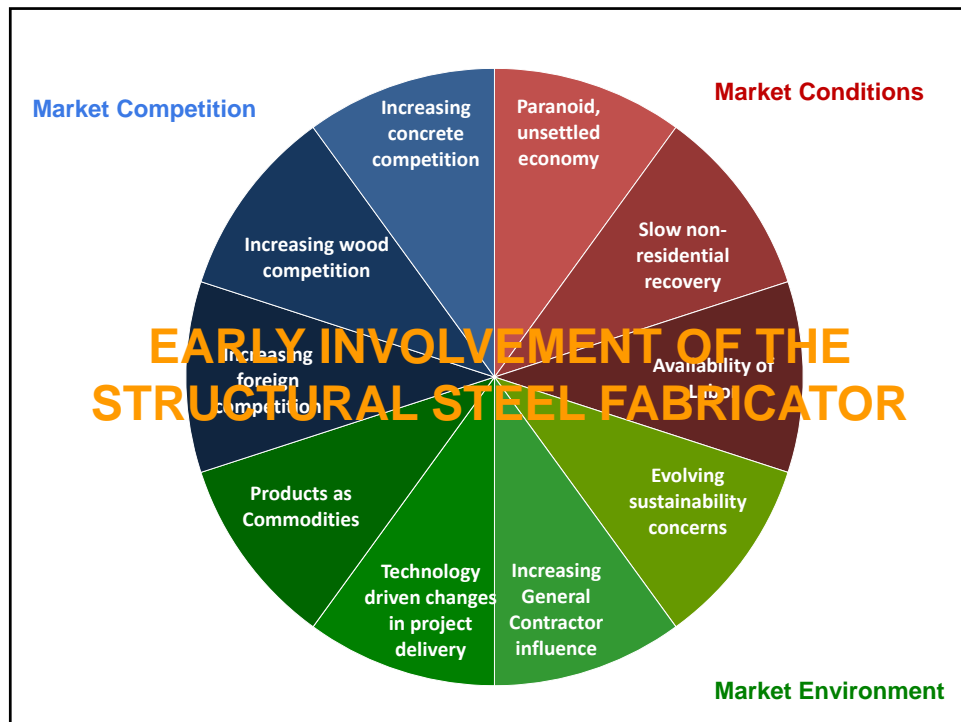




## What are we going to do about it?

	% of Market	2011	2012	2013	2014	2015Q2	
Retail	8%	76%	73%	69%	71%	75%	
Warehouses	6%	25%	53%	11%	25%	25%	
Office	11%	86%	63%	62%	65%	72%	
Parking/Auto	23%	4%	16%	13%	7%	15%	
Manufacturing	1%	22%	60%	54%	43%	2%	
Schools	5%	70%	75%	93%	83%	61%	Wood
Hospitals	6%	80%	27%	65%	56%	66%	
Government	2%	57%	67%	49%	78%	59%	
Religious	0%	31%	35%	39%	40%	0%	
Amusement	3%	54%	54%	62%	67%	35%	Pre-engineered
Misc	4%	76%	33%	10%	28%	28%	
Hotels	4%	67%	0%	86%	33%	37%	
Dormitories	2%			0%	0%	0%	
Apartments	24%	0%	16%	11%	19%	9%	Concrete
	% of Market	2011	2012	2013	2014	2015Q2	
1 Story	25%	46%	51%	37%	43%	36%	Wood
2 to 4 story	26%	66%	50%	62%	52%	50%	
5 to 19 story	40%	31%	16%	21%	16%	18%	Wood
20+ story	9%				100%	39%	Concrete





RMSCA

There's always a solution in steel.

