

The Workforce Crisis in the United States
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It is a pleasure and an honor to be asked to speak at this forum and present ideas related to a looming crisis not only in the construction industry, but in every American workplace.

The ideas presented herein reflect my own personal observations and opinions, and in no way reflect the opinions of Toltec Builders Incorporated, or the Associated General Contractors, either locally or nationally. Any and all flaws in the logic, thinking or information belong solely to the author.

This paper is intended to present a counterpoint to the approach taken by the LCI position paper, and some of the other presenters at this symposium.

The 'Lean' Model (Taiichi Ohno and the Toyota story: giving the employee the ability to 'stop the line' or make improvements, hence: empowerment, or the concept that it is not important that an item arrive from point A to point B in a specific amount of time – rather, it is important that an item arrives at point B from point A complete, with everything necessary for its smooth and unhindered advancement to point C, without ever having to go back and fix anything) revolutionized the concept of work and production in the modern world. We need to apply this same approach to the present problem. While many of the positions and 'solutions' presented here may be effective as temporary fixes or band-aids, the industry is attempting to deal with the problem as the old Ford production model deals with manufacturing defects: by recall. Rather than the way Taiichi Ohno declared the system standard for any type of project delivery should be, namely 'no defect to go forward.'

Although changes in the construction industry are certainly needed to create a healthier working and simply human environment, the emphasis for improvement in the industry should be in the supply side, not at the 'post production' side of the equation. Where LCI seeks to recognize opportunities to employ available labor more effectively and retain labor, I propose that we should be seeking opportunities to improve the supply chain for labor, and raise the entire standard for a national workforce. Supply an educated workforce with a high sense of accomplishment, self esteem and work ethics and the improvements necessary to create a healthier and more productive environment will come about as a natural development.

The solutions you hear at this symposium may be more construction industry specific. However, the crisis facing us at this time is not confined to the construction industry, and a far more broad based and radical solution to the problem needs to be approached, conceived, explored and developed.

I. The education supply chain for the construction industry is not supplying the graduates needed by the industry. We need a higher performance workforce.

No one argues that industry is presently experiencing difficulty securing qualified personnel in all trades and at all levels. In the Construction Industry this means equipment operators, laborers, concrete workers, masons, steel workers, carpenters, plasterers, sheet metal workers, plumbers, electricians, etc. However, this difficulty is being experienced by all layers and tiers of the American workforce.

A study forecast just released predicts that New Mexico will be in the 50th percentile for expected growth compared nationwide, and it is estimated that less than half of the structures exist now than will exist nationwide by 2025. The average age of a Carpenter today is 47 years old, that of an Ironworker 52, and yet construction related apprenticeship programs are struggling, variously, to fill their capacities. They are having trouble, as is all other Industry, finding personnel who can qualify for the most elementary of requirements – a High School diploma or G.E.D., with one year of algebra.

Vocational-Technical High Schools, where they still exist, cannot regularly place their graduates, and are in need of Industry to provide both a curriculum and Instructors.

The current educational track is not turning out children with competent basic skill levels in Math and Reading. Oftentimes, even with the qualifications noted above (H.S. Grad or G.E.D.), youth and adults entering the work force are still functionally illiterate and cannot compete at anything past a fifth grade math level without further investment of time and money by the employer or training program. Ford and Motorola, among many others, have to teach remedial skills to their new workers.

Even at the College Level we are producing Construction Management program graduates who cannot write sophisticated business letters. Industry has to engage in remedial training of the most basic kind. To be a laborer in the construction industry today takes sophisticated training to keep up with safety and professional procedural standards.

There are numerous programs and opportunities functioning at various places and levels in society designed to address all the issues related to producing a responsible and capable worker. Government – Federal, State and Local, Private Industry, Public Entities, Union Programs, Non-Union Programs, Associations and the Schools all have duties and activities in this arena. However, the efforts of all these entities are not coordinated. The system as a whole is suffering from numerous critical disconnects and is showing the signs of impending collapse.

II. The US educational system is part of the problem, not part of the solution.

The following is a description of General Motors Corporation when it realized it was in crisis:

- No team work
- Disconnect between management and production
- “Produce it now and fix it later” mentality

- Arrogance and rigidity
- Clinging to past successes as justification for present policy.

It describes as well the current American educational policy.

In the 1990s, by the 4th grade, Americans students were behind equivalent students of all other technological nations. Today we have declined even further.

At elementary school levels in the USA today, classes are very rigid, structured and tense, as early as the 2nd grade. Everyone has to get right to business. The teacher is the center of the class and the leader. Correct (vs. creative) answers are emphasized, and the classroom culture celebrates “individualism” – development of the individual, individual achievements, birthdays, tasks in the room – with no mention of teams, or teamwork. The class is split by ability based on testing. We divide by ability and separate the ‘gifted’ and the ‘slow’ at an early age. Is this typecasting? This versus instillation of the principle that desire can overcome ability, which emphasizes a different kind of achievement.

There is little or no parental involvement in the schools. Modern life is too busy; most parents do not have the time. Homework is assigned in a manner that is incompatible with the modern working parent. The current educational model still does not acknowledge the living reality of modern working life. The link between home and school is weak. There is no system in place to draw in the parents.

National Educational Standards are necessary. In the US there are 50 separate states, each with numerous school boards – 15,000 separate school districts set independent agendas in this country.

Classical “Vo-Tech” systems are dead because of lack of equipment, slashes in budgets and out of tune priorities. There is little or no connection between guidance councilors and vocational programs, our system is focused on the College bound. The USA continues to spend more money on prisons and less on education

The USA is not competitive in the World market. Our educational rankings compared internationally are dismal. If America is unable to put 70% of high school seniors into high producing jobs, America will not be a world player. If we can’t produce the quality we can’t survive. Only 5% of American companies are in the top performance status. We do not want to compete with the 3rd World.

III. Societal problems also contribute to the problem.

In many modern employable personnel there exists an attitude of entitlement, no sense of personal responsibility, characteristics of attention deficit disorders, and poor work ethics, among other symptomatic problems.

There has been a breakdown of what was the generally accepted family structure at home, with large portions of American youth being deprived of role models that teach high ethical and moral

values. It is proven that the influence of positive role models on youth can change the life track of an individual.

There has been a documented decline in group and associated activities across all layers of modern society. It has been demonstrated that memberships in churches, clubs, civic and fraternal organizations, even bowling leagues, are all declining at the same rate.

Our system emphasizes individuality over group mentality and team approach. The American principles of Individualism, self reliance, and diversity, although very much the source of our strength as a nation, often leave American youth feeling isolated, left out and alone.

There is a now documented and recognized psychological breakdown among teenagers, especially boys, when the school system changes from the one teacher/mentor/leadership figure with whom the child forms an attachment, to the multiple teacher formats currently used in high schools.

Inertia and clinging to old ways previously successful are impediments to success as well as symptoms of a failing system. No flexibility becomes symptomatic. Resistance or refusal to change on the part of established systems is one of the largest obstacles to progress.

Whether as a company or as a country, being the ‘only one,’ or the best one, makes us, or has made us, complacent, isolated and too compartmentalized. Leaders, in any position, tend to get cocky, careless, and complacent over time. When egos become an issue we are no longer working for the common good of all. In any enterprise requiring teamwork and cooperative effort for a greater good, egos need to be checked at the door. Territorial and jurisdictional power lines need to be dissolved. It is just when divisiveness is at its height and everyone ‘wants their piece’ that we need to pull together and seek a common productive solution, not divide further and strengthen traditional territorial defensive lines.

IV. Educational models that challenge students to develop creativity and to excel show promise as a solution.

The patient business approach to production, step by step with constant checks, needs to be applied to the education-to-career track. We have an assembly line educational process based on a limited definition of achievements. We lock ages to grades attempting to apply specific standardized means to rigidly defined groups, and in 12 years spit out semi functional units that we have to go back and repair individual aspects of later.

With the same application of radical solution that business must apply to face new challenges, the entire education to career tracking system needs to be evaluated and the same mentality of “Stop the line? Never!” will have to be faced. The assembly line approach to education does not work.

We must look at alternative methods which have led to successful results in other educational systems, and modify and adapt them to create a new model of American mass public education

which produces a mentality, capacity, attitude and skills commensurate with the demands of high performance systems.

By no means perfect answers, there are elements of both the German and Japanese educational systems that should be looked to for seeds of potential solutions to American problems. At the early grades, both societies have open classroom concepts mixing 3 or more grades together, which focus on team approach methodology over academics. Both systems understand that tapping the enthusiasm of the students furthers all things best, and that what must be cultivated early in young children is the desire to know, not necessarily knowledge itself.

Schools in Japan aim to teach values over academics. The environment is low stress, lots of laughter and the children control the daily agenda. There is no grouping by ability – faster students teach slower ones. The class is not teacher centered, the activities are driven by the children. Emphasis is on the desire to learn – early years emphasize the process of learning, forming thereby the foundation necessary for later education.

They teach order and cleanliness, how to build relationships and support one another. The students prepare the meals for one another at lunch and the teams rotate. The children are responsible for cleaning the school because it “cultivates a gentle spirit” and builds co-operative units and ownership. There is little or no homework at the early levels. A close partnership exists between the parents and teachers. There are regular notebooks between parents and teachers and strong support from the home and family. Sociable nature is more important than test scores – the ability to co-operate is cultivated.

The German early educational approach is similar to that of the Japanese. Circle greetings and songs in multiple languages start the day. The environment is low stress, more free to accommodate children’s natures. 1st and 2nd grade are done away with, there are no scales, no classifications. They allow natural order to develop among children, like the Japanese. There is much emphasis on helping others and teams. Children attend 50 more days a year in class than US in both Germany and Japan. Teachers have prestige and authority, and are well paid. German parents accept that teachers “know best” and “co-raise” the child.

Germany and Japan foster relationships and teamwork over individual opportunity and achievement. In the USA the gifted are tracked, others are not ‘made out for school,’ and 70% to 75% are left in the middle.

At the High School level the Germans spent \$15 billion/year in education of mid-kids in 1993, teaching 400 vocations from baking and bricklaying to insurance and industrial electronics. Private business and state schools work together. Children are considered “national assets,” and education is considered an investment.

At the 10th grade 66% of children are in apprenticeship programs operated by Industry. Industry operates the training programs. If a child is “bored” in school he or she can enter a formal apprenticeship program which pays and trains at the same time. The curriculum is loaded with “realtime” problems with leading edge equipment provided by industry. It consists of a 3.5 year course with 1.5 days in class, 3.5 days job training.

Career tracks at 16 with strong family involvement works. Schools bring students to vocational training centers at 14 to stimulate interest. There is a clear track requiring preliminary education from apprenticeship to tradecraft. In 1993 Mercedes paid \$65,000 per apprentice into the system.

White collar and blue collar jobs are all available, banking and management as well as all trades.

Apprentice programs improve academic grades because students have direct knowledge that if they fail, they will be passed over for job advancement. Wages are tied to scholastic performance.

In Japan at the high school level, in spite of great performance results, the price is high and the children do not like it. Forced reshaping is characteristic. There are rigorous national standards. The stakes are very high: how well one does in high school determines rest of one's life track. Japanese universities and companies recruit at high schools based on rigorous testing sorts and industry negotiates with individual high schools, who give their most promising students for guarantees of continuous job placement. The best high schools have 100% placement results.

There is a downside: Japanese teenagers commit suicide at the highest rate in the world, almost 4 times the international average.

Clearly different systems suffer different faults and consequences. We must adapt what is good from each different system, and create a new balanced model. The concept we should be examining here for modification into our own system is the seamless track from 2nd grade to career that these two countries have successfully constructed, where schools nurture teamwork and togetherness, a sense of shared purpose and commitment. Common purpose and group effort are routinely emphasized. These are the very same qualities which make a responsible, thinking, safe and productive employee in Industry and society at large.

V. Solutions to the educational and societal problems must be founded on a strong partnership between industry and education.

If the educational system or government is unable or unwilling to deal with the crisis on the supply side of an educated workforce, then Industry must step up to the plate and deal with the issue in an organized, thought out, long term manner. This Industry must do, not only for its own survival and profitability, but as a response to the social responsibility that business has in reinvesting in the community it draws its people and its resources from. It may be that no entity is better placed or capable to deal with this crisis in national workforce than Industry, with perhaps some unlooked for and unexpected benefits for all involved.

Industry and Education need to unite. We need a new model, and we need new ideas, in order to respond effectively to these problems. To find these new models or approaches, we should perhaps look to winning solutions developed by businesses who realized they were in crisis, and look to solutions developed by them as models for a new approach to the current problem. The principles of lean methodology need to be applied to the entire education to career track, viewed as a delivery system.

Corporations like Motorola and GM realized some time ago that Radical Change was needed – change or die. The following factors have become recognized keys to working high performance business systems:

- Emphasis on Excellence
- Lean Manufacturing Principles – easy to assemble, “Just in Time”
- Skilled Teams
- Worker Empowerment

Japanese Team approach is Kaizen, or “continuous improvement.” An example from the auto industry is the incorporation of improvements and ideas from workers into the production lines, such as custom invented tools, chairs, or changed procedures. Often the suggestions are not super hi tech, and give greater flexibility to the line production. Prior to the American adaptation of this idea, American system engineers designed without ever communicating with one another, or with the designers, or with production.

An immediate application in the educational system is having teachers input into administration regarding curriculum and standards, or in the earlier grades and in non-academic situations, allowing the children themselves to dictate the agenda. Another immediate step is having Industry input design suggestions or advice on academic curriculum in certain areas.

The concept of the ‘Human approach’ must be considered. This is the idea that not every human produces the same work always. Another example from the auto industry: Toyota experienced high turnover after investing in training in manufacturing; the work was physically too hard. Their solution was to design a car easier to put together. The educational corollary is this: If children are failing the educational system then the educational system is failing to meet the needs of the children, and the educational system must be changed. If the children are ‘failing the system’ then the system is failing to create a structure that provides a place for every child. In today’s world there is certainly a place for every child where they can fulfill a productive and responsible and self satisfying role in society and the workplace and be happy. It is the system which has failed to track these children to the right opportunities which result in inspiration and the desire to learn more.

The lean methodology approach to quality control of production in factories is: no defects to go forward. That, in educational terms, does not mean to throw out those who do not make it to the finish line in the specified time – it isn’t a race. It means you let them go when they are ready. In education it also means that there are no failures on the part of any students. The only failure is the system in not finding the right place for each child. This is the educational application of the “Just in Time” concept/Multiple sourcing methodology.

Just as in the USA workers are considered expendable (employment is based on the market conditions), we view youth in this country the same way. Where in the US the solution is to

industrialize, automatize, cut personnel and mass produce, social customs or laws in some other countries prevent companies from writing off employees, as we write off graduates from high school. We must lose the old flawed American model of expendability and consider the “long term relationship.” Every child must be realized as a valuable asset to society and an irreplaceable National Resource.

For us as a society to have an ‘education to career system’ that promotes cooperative teamwork and problem solving, then Ownership/Management and Labor/Production must form new relationships based on Trust, Respect, Good Human Relations, Co-Determination and Ownership

We must re-evaluate the worthiness of the established American approaches of: “Confrontation,” Strike and Lock out, “Management Knows Best,” or “Father Knows Best,” where management is isolated and performance is not related to compensation.

‘Short term – pay off – fast profit’ is the name of the game in the current American model. For long term managed development and effectiveness, planning is needed. Planning is missing in a speculative environment.

The Unions have a new role to fill in modern society and need to find their place in a new system as well. They must be fair, open and co-operative. The Unions could be the leaders in the industry side of a new education-industry equation, through apprentice and training programs nationwide.

In Germany employees unions have veto power over company Board compositions. Their goal, however, is always consensus. Such Boards are 50-50, labor representatives and owners. Employment balances profitability, this mentality fostered by the massive rebuilding effort needed after the Second World War which resulted in good labor-owner structures. Very unlike the adversarial contractual positions that currently define the American way of distributing responsibilities and doing business.

Factories so structured are run by ‘works councils.’ Shifts, job allocation, etc., are all determined by the Council. Worker’s representatives vote on company investments and plant closures. There are No strikes, there are No layoffs. The companies are constantly investing in diversification, new enterprises and ongoing employee re-education. The lessons to be drawn from these examples are the long range benefits of Continuity, Alliances and Power Sharing.

These ideas are already working their way into the American system. These changes are sometimes not voluntary, but a result of necessity. We should be examining the parallels and making the changes before the crisis becomes full blown, not afterwards.

Ford was a company forced to change. A highly hostile union/management relationship was changed to togetherness at the South Chicago plant, where production was enhanced dramatically after changes were established. Top-down management was eliminated. Partnerships were instituted with management and labor at joint meetings with the understanding that they were “all in the same boat” and that the “factory can’t go down.” Management took suggestions from workers for improvements. Employees were involved in meetings to improve

on all levels. The “stop button” program was instituted. Easier, safer, more efficient improvements based on worker suggestions were made. “Ownership” of the program and a family environment was fostered. Union official involvement was, in their own words, “to serve” the workers. There are no layoffs.

Parallels to the current educational system structures are evident.

We need to be looking ahead and forming Communities of Shared Interests, creating new and powerful alliances between Industry, Finance and Education as we look forward for a new model by which the interests of all concerned may be fostered and made more profitable.

VI. Several educational models are reviewed.

None of the ideas mentioned in this paper are new. In the early 1990s, journalist Hedrick Smith profiled many of the problems and potential solutions outlined here in the series “Challenge to America.” The final part of that series took a look at various new solutions, two of which specifically deserve to be looked at in the context of this paper. There are other more current examples as well.

What they all have in common is that they all require rethinking or considering the reform of things to which we are accustomed – they all break with old methods. Sometimes radical reform is required to come up with new solutions.

Presented are bulleted highlights of the programs only. They all require further in depth analysis as to effectiveness and their place in a long term solution.

Model 1 Central Park East Harlem High School 106th St. East Harlem

- Students and parents must choose the school and accept all rules – “No weapons,” etc.
- Teachers set the Curriculum, the grade standards, and how they teach.
- Approximately 450 Students. Each Student has a personal advisor. There is constant personal contact and teachers know their students.
- 100% attendance at parent conferences – there is partnership agreement between the family and the school.
- Job internships and community service are requirements.
- Depth in learning – habits of mind – critical thinking taught.
- Small classes.
- No final exams – graduates must produce 14 portfolios defended dissertation style.

Model 2 Wisconsin Apprenticeship Programs

- Non-college approach.
- Partnership between School and Industry.
- Youth apprenticeship programs for the 75% who do not graduate college with 2 days at school and 3 days on the job training.
- Applied academic programs – for example, the math is geared to skills.

- Business pays the student and teaches on the job.
- Students leave the program State Certified in various fields, Auto, Agriculture, Small Business, etc.

Comments by the then Governor of Wisconsin regarding what reformers have to do to make the program successful:

1. Small classes – personal structure
2. Parent involvement through choice
3. Strong principals or leaders
4. Mentor relationships are key

The Political system needs moving. Pennsylvania, Maine and Wisconsin were the leaders in mid 1990s in Federal Involvement.

Model 3 – Construction Careers Center, St. Louis, Missouri
www.constructioncareerscenter.org

Buy the charter schools and set up our own program. The Principal at the School is Bill Sheffler, and the AGC Contact is Terry Eivins, Director of Professional Development.

Notes from an AGC Staff conversation with Bill Sheffler:

“We can either try to find programs that hook kids or we can build more prisons.”

- Fourth year, first graduating class of 34 this May. (Started with 111 – some just realized that they weren’t interested in construction.)
- Started with just a group of freshmen. Pros and cons to that option.
- 66 in the current junior class – so they will hopefully have more graduates next year.
- 19 teachers – all academic subjects
- 308 students this year – hoping for 400 next year.
- Have a dedicated placement counselor for the first time, this year.
- Charter School Board – 7 members
 - 4 of 7 of the School Board are AGC contractor members appointed by AGC Board
 - Parent at large
 - Educator at large
 - Labor at large – currently carpenter’s union
- Requires *champions*
- What makes this work compared to other places: the passion of the Industry (vs. a group of parents who just got disgruntled with the public school system and started up another option...when their students graduate, they go too.)
 - AGC put in 4 million dollars to renovate the school.
- They use public transportation and provide the students with the necessary passes.
- Approx. 2 million dollars overall budget in the 04-05 school year.

- Monies flow through the AGC Chapter's Education Foundation.
- They hope to see a transition in the student population from those who were there because it was an alternative to traditional options, to those who are truly interested in the construction trades and going into the industry. (Their new marketing efforts will focus on this.)

Their recommendations are find out how easy it is to run and/or fund a charter school in your state politically. i.e., in Missouri, a college has to sponsor the school. Plus, through legislation, the City of St. Louis can sponsor, as in this case.

Curriculum and Programming

- Didn't advocate any particular curriculum.
- Freshman Year – “QuesTech” – students use modules that are 10 hrs each. 14 total modules. Gives exposure to all different trades. Includes safety and tools.
- Sophomore Year – Blueprint/Estimating/Drafting
- Junior Year – focus on three possible trades, plus job-shadowing (e.g., plumbers training program). Also do a wall-section program.
- Senior Year – math and science plus internship. (e.g., maintenance at Holiday Inn and plumber's helper; working at Home Depot.) Others work with local Habitat for Humanity.)

Terry Eivins is the construction school liaison between AGC, the school and the board of education at the AGC chapter. His comments were we are “Not going to resolve the workforce shortage issues today.” It takes a long term commitment. i.e., your incoming freshman is 14 ... it will be approximately 14 years before he is really working as a productive contributor in the industry.

Example 4 – Northwest College of Construction--NWCC Oregon

The program in Oregon exemplifies partnership in the construction industry. Rather than bullet pointing what they are doing, perhaps an extract from an e-mail might capture what is happening there a little better:

“You guys best move aside, the freight train's moving on down the tracks and we ain't wearin' no stinkin' badges.”

More information on this program may be found by contacting the Associated General Contractors, Oregon-Columbia Chapter.

VII. Strategies for success are proposed.

This is a conclusions section, however, many of the conclusions are not derived from the text.

In closing, we seek practical applications and solutions to some very serious problems. We need to come to the solutions in two ways. One is philosophically, the other perhaps more practically.

First, below is a condensation of ideas gleaned from men and women who have been leaders in their respective fields, or companies, who have had to come face to face with having to develop practical solutions or fail. Many of the ideas have their foundation in Lean Methodology thinking. These are all ideas common to the people who successfully took failing systems and turned them into high performance systems. They are given in no particular order of importance or preference. They are laid out as a philosophical precursor and foundation, as the basis of approach necessary to bring new practical solutions to fruition.

PHILOSOPHICALLY BASED SOLUTIONS AND COMMON STRATEGIES FOR SUCCESS

- People are the source of success
- No changes happen without outside pressure; Technology and International Global Competition and presence are forcing that change.
- There must be a new mindset; Mindset is the key
- “Deep Change” – fundamental assumptions have to be challenged. We must be willing to abandon failed strategies.
- Total Quality Based
- We must overcome the thought that change is onerous and that change appears hard to do because the previous system worked. We must take the best from many systems and create something new. Be pragmatic and direct, do what works.
- Most importantly – high performance systems have efficient learning systems. Adversarial learning systems do not work – information is not shared. Decentralize the educational structure.
- If we want to compete we must change. We need well trained re-educated workers with a decentralized administration which empowers decisions ‘in the field.’
- New Partnerships must be made – Government/Business/Education/Non-Profits; there must be new or changed relationships between key entities – Industry – Public Education – Government – Labor – Non-Profits – Models of co-operative related entities; you can compete *and* cooperate.
- Redefined Labor/Owner Relations are keys to success. Management is not Bosses but Teachers and Consensus Builders
- Power has to be given up – [reallocated really] – that is de-centralization requiring a change of the Process – There must be a Redefinition of Power
- Decentralize decisions to the people doing the work then create a positive reward system (not negative – i.e., do what I say or face ill consequences)

- Job security then becomes part of a high performance system – Security – not the threat that you will lose your job if you do not perform. Long run focus – no layoffs – lifetime employment model. Focus on the long term relationship – skills and relationships that are intended to be lifelong – mentor/teacher or a life career. Everything considered here requires a change of culture – a new industrial contract with workers.
- Ownership
- Pride in work produced – Medieval concept of Guilds – Mastership, Journey-workers, and Apprentices – Master-workers as role models and mentors to apprentices and to youth.
- Mentorship – New role models and opportunities to lead and inspire youth are needed; Mentors instead of the parent as role model/authority figures.

Secondly, with all of the above as a philosophical groundwork, Industry, Government and Education need to combine to form a new model program. What that program is has yet to be designed. To get to the design and eventual full implementation of such a program, the following is proposed:

That there be held, at a neutral location such as the University campus, a facilitated forum of public and private entities designed to examine the issues raised herein, and charged to solve the disconnect between education and jobs. The outline provided below is one proposed specifically for the City of Albuquerque at the time of the writing of this paper, but may be locally adapted, with the following suggested invitees below serving as representative of the desired attendees in your own city:

A single Representative each from:

The University of New Mexico

Albuquerque Public Schools

Local Government – City of Albuquerque

State Government

Education Secretary at the Cabinet Level

State Secretary of Children Youth and Families

State Apprenticeship Development Director

Federal Government

Private Industry

Construction/Utility

Hi Tech

Commerce

Other

Labor

Union
Open Shop

Finance and Banking

Presidents or VPs of Commercial Development

Not for Profit Foundations

Lean Construction Institute
Other Learning Foundations

AGC Director and Workforce Development Director

ABC Director and Workforce Development Director

Chairs of the JATCs – Joint Apprenticeship Training Committees

Director(s) of Union Training/Apprentice Programs

Director(s) of Open Shop Training/Apprentice Programs

TVI – The Technical Vocational Institute

Valley Vocational High School

Representatives from Insurance and Sureties

Charter Vocational High School

Special Assistant to the Secretary Children Youth and Families

Principal, YCDC High School

ACI Chairman of the Board (Assoc. of Commerce and Industry)

Appropriate State Senators and Representatives from the Albuquerque area, and those statewide with a particular interest in Education

A Professional Facilitator

This list, of course, may be modified. It is intended to represent or illustrate a proposed structure only. Ground Rules would have to be determined, and by no means would a solution be expected to be derived in a single session. But it would be a beginning. The issues raised here are too large to be solved by any single group or entity alone. It is only by coming together and commonly seeking a solution that we will be able to successfully overcome the challenges facing us, both in business and as a modern society.