



Bid Response  
For

## 2013 ISID General Professional Design Services

Ms. Melissa Sambiagio  
Dept. of Technology, Management and Budget  
Design and Construction Div.  
Stevens T. Mason Bldg.  
530 W. Allegan St. 2<sup>nd</sup> floor  
Lansing, MI 48909

Submitted by:



Contact Bret Emerson  
616-863-8132



# CommtechDesign

3741 Windwood Drive  
Rockford, Michigan 49341

Ms. Melissa Sambiagio  
DTMB  
Stevens T. Mason Bldg  
520 W. Allegan St.  
Lansing, MI 48909

RE: General Professional Design Services –ISID Contract

Ms. Sambiagio

I am writing in response to your request for General professional design services. We are excited about the possibility of working with you and your team.

CommTech Design has been a leader for eight years in providing technology design services to our many clients.

We have worked on numerous State of Michigan Projects in the past years and are currently working on numerous projects with the State. These include:

- Hawthorn Medical Facility security Design
- Security for Governor's house on Mackinac Island
- Identification of existing Camera system for Department of Corrections.

CommTech Design is a Communications and IT design firm that provides design services to public entities and corporations. I started this company because I believe that technology should be designed by an independent designer to meet the owner's requirements and not to be a system that a contractor happens to sell.

Our goal is to work with the owner and help them realize how the technologies that they install can help their business while being totally integrated with the business plan and other systems.

Our services include complete AutoCAD drawings and CSI based specifications that correlate directly with the owner's requirements and today's latest technologies. By working with the owner throughout the design process, we can completely design IT systems that work with owner's business needs and the specific needs of the staff.

We appreciate your time and would welcome any opportunity to work with you and the State of Michigan

Bret Emerson will be the main client contact and will work with the owner throughout the projects.

Sincerely,

Bret Emerson, RCDD/NTS  
President  
616-863-8132  
emersonb@commtechdesign.com



# CommtechDesign

3741 Windwood Drive  
Rockford, Michigan 49341

Ms. Melissa Sambiagio  
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RE: General Professional Design Services –ISID Contract Narrative

Ms. Sambiagio

I am writing in response to your request for General Professional Design Services for DTMB projects. We are excited about the possibility of working with you and your team.

As the base of this project, CommTech Design will be consulting services, systems design and installation oversight of technology systems to serve the building.

## **Who we are:**

CommTech Design is a Technology Design firm that provides design services to architects and owners. I started this company because I believe that every building that is built will have some aspect of technology and that the owner is better served when those technology systems are fully designed much as the electrical or mechanical systems are designed.

Our goal is to work with the owner and help them realize how the technologies that they install can help their business while being totally integrated with the architecture and other systems.

Our services include complete AutoCAD drawings and CSI based specifications that correlate directly with the building and its components. By working with the owner throughout the design process, we can completely design technology systems that work with the owners's requirements and the technology realities available today.

## **Type of Business**

CommTech is a completely independent technology design company. We provide design services to schools, businesses and government entities throughout Michigan and beyond. We are not affiliated with any products, manufacturer or pre-conceived solution.

We specialize in designing solutions that meet your needs after careful review of existing systems, the budget and the requirements of the administration, staff and students. We provide complete planning, design and installation oversight services for all of our projects. With that type of complete project involvement we help to ensure that the systems that are installed meet the owners and students requirements and will last for years to come.

# Understanding of Project and Tasks

We had had an opportunity to work on over 50 different projects for governmental institutions and schools. We completely understand the design-bid-construction management process and have completed numerous projects through Michigan.

We have worked on the following State of Michigan Projects:

- Technology Design for new Michigan State Police Headquarters
- Design of new Video security and monitoring system for Joint Operations Center in Lansing
- Identification of existing video security systems for eight Dept. of Corrections Facilities
- Design of video security systems for Hawthorn medical facility
- Design of complete technology systems for DHS building in Grand Rapids
- Design of technology systems for Kent County Jail addition.

As part of our design and implementation process we work with the entire team throughout and give special attention to the owners direct technology desires and the associated budget. Our work includes:

Technology systems shall include the design and installation oversight for communications cabling, audio/video systems, security systems and training as detailed below.

CommTech Design will work in conjunction with the owner's representative, DTMB representatives and others as required. CommTech will generate drawings and specifications that will be issued for bids to potential contractors.

Each project includes consulting, design and installation oversight and usually includes the following technology systems.

- User telephone and data cabling
- Audio and Video systems including cabling, connectivity and equipment
  - General Audio and Video systems
  - Conference room AV systems
- Security systems including video security systems and access control systems.
- Data network design including wireless networking system
- New Computers and laptops
- Assistance in scheduling, project management and training on the communications systems

## **Project Objective**

We realize that each projects is different. Where one project might just include security, another might include a complete technology design.

For all projects the objective is to design, procure and install technology systems and then train the users on that technology,

The work included in this project can be broken down to three general phases, Consultation, Design and Installation oversight

## **Consultation**

To procure a complete technology system to serve an existing or expanded facility you must first look at the groups and people within those groups that will be utilizing the systems. Their needs

and requirements and future growth must be factored into the design of the systems. As part of the Consultation, CommTech Design proposes to:

1. Determine stakeholders for the technology systems.
  - Identify those responsible for each of the systems and who those systems will serve.
2. Gather key documentation of proposed systems and applications
  - Identify service provider(s) for communications systems. Determine if they can provide future systems and services as required for the renovation
3. Meet with administrators and stakeholders to determine project milestones, timeliness and deliverables.
  - Determine systems that will be bid and how bid packages will be assembled.
  - Understand completion times and dates.
4. Identify potential manufacturers and contractors of systems that will meet the project requirements.
5. Determine an overall project budget and design based on that budget.

Consultation will not stop at this phase, but will continue through the different steps of the project. CommTech will work with the project representatives throughout the installation of systems at all their facilities and will work with the owners to plan training, documentation and future service level agreements with the chosen vendor(s).

## **Design**

After we have a firm grasp on the goals of the systems, input from stakeholders and have identified the technologies to meet all requirements, we move into the design phase.

This will include creating design documents for the systems included in the budget and that are required by the owner.

The key activities associated with the design of communications systems and choosing a contractor or contractors to install the systems are:

1. Gather final information for design drawings and specifications.
  - Determine how existing systems can be added onto, moved and expanded.
  - Specify training requirements for administrators, users and specialized personnel.
  - Determine if on-going support and maintenance is to be part of the communication design
  - Design acceptance tests and commissioning requirements.
  - Specify timetables for contractors
2. Complete specifications and drawings.
  - Work with the owner's representative to define space for all technology systems.
  - Design cabling and connectivity requirements for fiber backbone, copper backbone, video and audio distribution, access control and video security systems.
  - Coordinate raceways and power requirements with the electrical engineer.
  - Coordinate heat and cooling requirements with the mechanical engineer.
  - Design all audio and video systems and cabling
  - Work with the administrators to determine telephone and data network equipment required for expansion.
    - Generate bid documents required to procure new or updated telephone and data systems.
    - Generate bid documents required to purchase new servers and any computers.
  - Send out design documents to chosen contractors.

- Evaluate responses to the RFP and meet with bidders, Jenison administrators and project managers as required.
- Since there may be multiple technology bid packages, this design process may be repeated numerous times throughout the project timeline.

### **Installation Oversight**

Once the Contractors are chosen we will move into the Installation oversight portion of the project. During the installation the following tasks will be completed:

1. Review project submittals.
2. Attend project meetings to keep up to date on the installation. Conduct site walk-thru's to review the installation.
3. Review and answer RFI's for the communications systems.
4. Oversee testing and commissioning.
5. Create punchlist's at the end of the installation.
6. Ensure the contractor provides required training.

### **Why CommTech Design is best suited for your projects**

DTMB wants to work with one of the best Technology Design firms in Michigan. We suggest that you want to work with CommTech Design.

We offer consulting, design and detailed bid documents to help you realize the goals of a robust infrastructure that work today and in the future.

CommTech Designs excels in working on technology projects with the State of Michigan Entities. Our system of information gathering, design and document preparation provides the owner with a complete solution.

We work extremely hard on understanding what is going to enhance the working experience for our clients.

The overall solutions are not possible without attention to detail. Anyone can say they understand what you want and they say it is included. CommTech works to demonstrate how the system will work and then documents the systems so that there is always a document to review to ensure your assumptions were actually included in the design.

One thing that might not seem important but is very useful in the design and implementation process is the relationship with the contractors that will be installing your systems.

CommTech has an extremely good relationship with contractors. They feel that they are treated well on our projects and they know that when they look at documents they are complete. This allows them to compete on an even playing field when responding to bids.

Your experience with CommTech Design will be a great experience involving a complete knowledge of the latest technology. We mix in learning, design and fun to allow everyone to be involved and have a stake in the systems design.

# Personnel

Project Manager and Designer

Bret Emerson, owner and President of CommTech Design will be the project manager and

Associate Engineers:

Clinton Morris -RCDD

Rob Lomb –RCDD

Project Manager

Bill Culhane

The primary client contact will be Bret Emerson, owner and lead designer.

Bill Culhane will be used as the client contact when dealing with the contractors and Granger after bids are received. Bill has managed projects up to \$180,000,000 and is a favorite person that our clients work with.

Specialized specifications and drawings for the bid packages will be completed by Clinton Morris, and Rob Lomb.

Resumes for each designer are attached below.

We pride ourselves on efficient use of our time and our equipment to ensure that each client has sufficient meeting time and planning time.

Resumes for each designer are attached below.

## Bret Emerson RCDD/NTS, CNE

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**Who we are:** CommTech Design is a communications engineering company that specializes in working with owners and architects to help ensure that the building is equipped with a technology infrastructure including cabling, audio/video systems and security systems...

**What we do:** We work with the owner to help them decide what technology is required and then provide drawings and specifications that detail what should be provided and how it should be installed.

**Services:** We provide consulting and design on fiber and copper cabling, telephone systems, data networks, wireless networks, audio and video systems, access control and video security systems.

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**Experience:**

Bret Emerson is the president of CommTech Design and has been designing and consulting on technology systems for the past 12 years.

His projects run from single building offices to campus type installations with over 100 buildings.

Whether you are looking for a new telephone system or need to upgrade to an advanced video security system, Bret has designed systems and infrastructures that allow you not only to use the technology but helps you to understand why it is needed and how to keep track of it through drawings that are included with each design.

**Registration/Certification**

BICSI Certified Registered Communications Distribution Designer (RCDD)  
BICSI Certified in Network Transport Systems (NTS)  
Novell Certified Network Engineer (CNE)  
Cisco Certified Design Associate (CCDA)  
Siemon Certified Consultant/Architect  
Hubbell Certified Consultant

**Awards:**

Bret was named one of *Building Design & Construction* magazines “40 Under 40” superstars in the AEC industry for 2006.

**Publications:**

Bret Emerson writes articles for communications publications. The articles highlight a certain installation or trend in the communications industry. Recent Articles include:

*Next Stop, Updating Communications Technology!* –October, 2004 [Cabling Business Magazine](#)

*Ensuring Rider Safety* –January 2005, [Security Magazine](#)

*The New Technology of the RAPID* –December 2004, [Sound and Communications Magazine](#)

*Cabling the Classroom for successful Audio/Video* –June 2005, [Cabling Installation and Maintenance](#)

**Presentations:**

AIA State of Michigan – Continuing Education Seminars – Presentation “Communication Engineers – What They Do and Why You Should Work With Them”.

InfoComm: - Presented at the Intelligent Buildings symposium and discussed integrating Security systems into the overall building design.

AIA certified education provider. Bret Emerson provides continuing education credits for architects as part of his presentation “Technology Today. What Every Architect Should Know”

**Recent Projects:**

Ravenna Schools: -Worked with the owner and architect to design new technology systems to serve the new middle school and football field. This included a new field audio system and video of the game into the concessions stand. Further work included audio/video classroom systems throughout the district. They also are installing a new telephone and data network system throughout.

Montague Schools: The work at Montague includes complete technology for the operations building and the new Early Child Center. The district is also going to upgrade their telephone and data network systems district-wide. CommTech provided complete planning and project oversight for these systems.

Traverse City Schools: CommTech was engaged to fully design and project manage the installation of video security and access control systems to serve the two high schools and two middle schools. These systems were designed with the knowledge that they would be expanded in the future to encompass security systems throughout all 22 buildings in the district.

Dexter Schools: Dexter needed a security solution that would serve the entire campus. CommTech Design completed site visits and visioning summits to understand the building and student security requirements. We then completed drawings and specifications to bid out the purchase and installation of a system that will secure each building.

GRPS-Straight Elementary: -Documented the CAT-6 cabling locations and communications rooms. Designed the audio and video systems in the cafeteria and gymnasium and laid out the paging system.

Sparta Schools –Designed a complete communications system for their new High school. The system includes cabling, communications rooms, audio and video systems, access control and video security systems

Veterans Hospital Lansing, MI:

CommTech Design worked with the architect and owner to design a complete cabling and security system for the in-patient mental health floor. This included new communications rooms and a fiber and copper backbone to serve the renovated space. The technology included an audio/video design for game playing in the common areas and TV's throughout.

InterUrban Transit Partnership. (Grand Rapids Bus Garage)

CommTech Design was engaged to design a new security system for the bus maintenance and storage building. We were also tasked with designing a new wide area fiber cable to connect the bus garage to the main office building a few blocks away.

Van Andel Institute: This medical research facility in Grand Rapids will be expanding with the construction of Phase 2 which includes lab space, offices, an executive suite and research facilities throughout. Bret Emerson is working with world renowned architects Rafael Vinoly and Electrical Engineers from Flack & Kurtz to design all the communications system for this new phase of the building. The communications systems include all specifications and drawings for the new data center, audio/video systems, network systems and security network.

Aquinas College Library: Aquinas college needed to replace their existing library on campus here in Grand Rapids. CommTech worked with the owner and architect and construction manager to design a technology enriched library environment. The library was four floors of drop in PC use, study areas and stacks areas.

East Grand Rapids Library and City Hall: CommTech was asked to come into the project after the design had begun and design a data cabling system for the city hall and Library which are in the same building. We also were asked to coordinate the installation of the security and AV systems since they were already under contract.

St. Mary's Hospital: New four story Emergency Department, clinic floor, two floors of inpatient care and a seven story parking deck. Bret worked with all users throughout the hospital to design the security, audio/video and cabling systems to serve the new hospital.

State of Michigan DMB: Designed a complete Security monitoring system and new video security control and recording system for seventeen buildings in downtown Lansing, Michigan. This will serve as the new video security system for the state DMB buildings.

Carson City Hospital New Emergency Room: -Designed the cable infrastructure for the voice and data systems. Helped plan network migration as they take existing areas offline and bring up new areas as construction continues. Planned fiber optic and copper backbone installation to keep all areas connected. Implemented audio and video systems to match existing hospital systems and provide a video-rich environment for patrons and staff in the ER.

Carson City Hospital Medical Office Building: -Designed the cable infrastructure for the voice and data network including a fiber optic and copper backbone connection to the existing hospital. CommTech also designed audio paging system and video distribution system.

Hastings Public Library: This was a brand new library building. CommTech designed the complete AV, Security and Telecommunications systems including servers and data networking/telephone systems for this building. This system was installed on budget and was an extremely forward thinking library in terms of Technology.

Michigan Electrical Transmission Center: -Designed the cable infrastructure for both internal and control systems. Laid out all communications rooms and designed boardroom audio and video systems.

GRPS-Straight Elementary: -Documented the CAT-6 cabling locations and communications rooms. Designed the audio and video systems in the cafeteria and gymnasium and laid out the paging system.

Sparta Schools –Designed a complete communications system for their new High school. The system includes cabling, communications rooms, audio and video systems, access control and video security systems.

Jackson Readiness Center, Jackson, MI – New Michigan National Guard Readiness Center currently in the design process.

# **Robert J. Lomb, Jr., CPP, PSP, RCDD**

## **Education**

Pursuing a Masters of Science in Homeland Security, American Military University  
B.S., Criminal Justice, West Liberty State College

## **Years Experience**

Total Industry Years - 11

## **Professional Registration**

ASIS International, Certified Protection Professional

ASIS International, Physical Security Professional

BICSI, Registered Communications Distribution Designer

Chemical-Terrorism Vulnerability Information Authorized User Certificate

## **Professional Achievements**

Mr. Lomb is a security designer and consultant with specialized professional competence in systems design, evaluation, testing, project management, construction administration and implementation using integrated state-of-the-art security solutions. Robert has extensive experience in the development of construction documents, specifications, schematic designs, and drawings for the purpose of a competitive bidding process. He has experience in conducting vulnerability risk assessment surveys and designing proactive solutions to mitigate key assessed risks. Robert's excellent communication and leadership skills strengthen his broad knowledge base in designing and managing multiple complex enterprise security implementations.

## **Project Experience**

### **TRANSPORTATION**

Indianapolis International Airport, Midfield Terminal Project - Indianapolis, Indiana.

Indianapolis International Airport, FAA TRACON Tower - Indianapolis, Indiana.

Indianapolis International Airport, Generator Outbuilding Security Design - Indianapolis, Indiana.

**Baltimore-Washington International Airport, Access Control Study** - Baltimore, Maryland.

**Albuquerque International Sunport, Communication Command Center/Emergency Operation Center** - Albuquerque, New Mexico.

**Albuquerque International Sunport, IT Strategic Plan** - Albuquerque, New Mexico.

**Wichita Mid-Continent Airport, Terminal Development Program** - Wichita, Kansas.

**O'Hare International Airport, Automatic Transportation System Security Upgrades** - Chicago, Illinois.

**Metra Electric (METRA), La Salle Commuter Station Passenger Information Display System Design** - Chicago, Illinois.

**Metra Electric (METRA), Randolph Commuter Station Passenger Information Display System Design** - Chicago, Illinois.

**Metra Electric (METRA), Randolph Commuter Station Security System Design** - Chicago, Illinois.

**Metra Electric (METRA), Ogilvie Commuter Station Passenger Information Display System Design** - Chicago, Illinois.

**Metra Electric (METRA), Van Buren Commuter Station Passenger Information Display System Design** - Chicago, Illinois.

**Metra Electric (METRA), Union Commuter Station Passenger Information Display System Design** - Chicago, Illinois.

**Chicago Transit Authority (CTA), CTA Station (4 Brown Line Stations) Security Design** - Chicago, Illinois.

Doha International Airport, Security Design and Consulting

## **GOVERNMENT**

**Lexington Fayette Urban County Government, Public Safety Operations Center** - Lexington, Kentucky.

**Jefferson County, Alabama, Combined Emergency Communications Center**, Birmingham, Alabama.

**Cook County, Data Center, Security Design** - Chicago, Illinois.

**FBI Lab and Storage Location** - Chicago, Illinois.

**United States Social Security Administration, Harold Washington Social Security Facility, Security Upgrades** - Chicago, Illinois.

**Illinois Capital Development Board, James R. Thompson Center** - Chicago, Illinois.

**United States Postal Service Main Distribution Hub** - Chicago, Illinois.

**United States Postal Service** - Chicago, Illinois.

**United States Postal Service** - Detroit, Michigan.

**United States Postal Service** - Forest Park, Illinois.

**United States Postal Service, O'Hare Airport** - Chicago, Illinois.

**United States Postal Service** - Rockford, Illinois.

**United States Postal Service** - South Suburban, Illinois.

**United States Postal Service - South Bend, Indiana.**

**Einhorn, Yaffe Prescott Architecture, John F. Kennedy Presidential Library - Boston, Massachusetts.**

**State of Nebraska, State Capitol Buildings, Vulnerability Assessments - Lincoln, Nebraska.**

**Village of Frankfort, Police Station Security Design - Frankfort, Illinois.**

**Chicago Department of General Services, Chicago City Hall Life Safety (CCTV) Design - Chicago, Illinois.**

**National Institutes of Health - Bethesda, Maryland.**

**Modernization of the Margaret Chase Smith Federal Building and United States Courthouse, General Services Administration – Bangor, Maine.**

**Theory and Computing Sciences (TCS), Argonne National Laboratory – Darien, Illinois.**

**Cook County Department of Corrections and Courthouse Video System Upgrade – Cook County, Illinois.**

**Pope Air Force Base, Site and Facility Upgrades – Fort Bragg, NC**

**Fort Bragg, Site and Security Upgrades – Fort Bragg, NC**

#### **Utilities**

**City of Chicago Department of Water Management, Jardine Water Purification Plant Campus Perimeter Security Surveillance - Chicago, Illinois.**

**City of Chicago Department of Water Management, 39th and Iron New Warehouse and Maintenance Facility Security Design - Chicago, Illinois.**

**City of Chicago Department of Water Management, Facilities Perimeter Protection Design and Enhancements (12 Pumping Stations, 2 Purification Plants) - Chicago, Illinois.**

**City of Chicago Department of Water Management, Jardine Water Purification Plant Access Control System Upgrade - Chicago, Illinois.**

**City of Chicago Department of Water Management, Jardine Water Purification Plant Main Gate Redesign and Augmentation - Chicago, Illinois.**

**City of Chicago Department of Water Management, Security Design Standard Creation - Chicago, Illinois.**

**City of Chicago Department of Water Management, South Water Purification Plant Access Control System Upgrade - Chicago, Illinois.**

**City of Chicago Department of Water Management, South Water Purification Plant Main Gate and Entry Drive Design and Augmentation - Chicago, Illinois.**

**City of Chicago Department of Water Management, South Water Purification Plant New Chlorine Facility Security Design - Chicago, Illinois.**

#### **FINANCIAL**

**Harris Bank Building, 115 LaSalle Building** - Chicago, Illinois.

**Barwa Financial Centre** - Doha, Qatar.

### **COMMERCIAL**

**Brookfield Properties, Assessment of Existing Security Systems** - New York, New York.

**Prentiss Properties, City Place Office Building, Security Assessment** - Dallas, Texas.

**ABN AMRO, Audio Visual Systems Design** - Chicago, Illinois.

**The Mills Corporation, Block 37** - Chicago, Illinois.

**Fog Advisors, Computer Discount Warehouse** - Las Vegas, Nevada.

**Doha Convention Center and Tower** - Doha, Qatar.

**Dubai Marina Mall and Hotel** - Dubai, UAE.

**Harley Davidson Motor Co., Juno Facility Upgrades** - Milwaukee, Wisconsin.

**Harley Davidson Motor Co., York Facility Upgrades** - Milwaukee, Wisconsin.

**Harley Davidson Motor Co., Research and Development Facility Upgrades** - Milwaukee, Wisconsin.

**Hines, Harris Building**, Chicago, Illinois

**Hollister**, Libertyville, Illinois

**Lake Point Tower Condominium Association, Lake Point Tower**  
Chicago, Illinois

**Foley & Lardner, Main Office Security Design**, Chicago, Illinois

**Miami Omni Mall**, Miami, Florida

**Mills Corporation Headquarters**, Arlington, Virginia

**Rockwell Automation, PROJECT**, Milwaukee, Wisconsin

**Waterside Place**, Boston, Massachusetts

**Wellington Green Mall, Security Design**, Wellington, Florida

**Willow Bend Mall, Security Design**, Willow Bend, Texas

### **TELECOMMUNICATIONS**

**Charter Communications, North Central Region Communications Technology and Workforce Management**, Madison, Wisconsin

**SBC-Ameritech, OSP Air Dryer Nitrogen Back Up Systems (10 Sites)**

Chicago, Illinois

**US Cellular, Large Prototype Security Design, City, State**

AT&T Security Upgrades, Facility and Site Upgrades, GA/IL/WI

Verizon Wireless, Security Upgrades – IL/CO/GA/MD/TN

Verizon Business, Security Upgrades – IL/CO/WI

**HOSPITALITY**

**Wyndam Grand Hotel, Doha, Qatar**

**Sofitel Hotel, Security and Audio Visual Design, Chicago, Illinois**

**Dubai Marina Mall and Hotel - Dubai, UAE.**

**Doha Convention Center and Tower - Doha, Qatar.**

**Sofitel Chicago Water Tower - Chicago, Illinois.**

**HEALTHCARE**

**Shriners Hospitals for Children, New Replacement Hospital - St. Louis, Missouri.**

**Advocate Health Care, Virtual Security Manager - Chicago, Illinois.**

**Advocate Health Care, Trinity Hospital - Chicago, Illinois.**

**Alton Mental Health Facility, Security Design - Alton, Illinois.**

**Columbia St. Mary's Hospital, Lake Front Campus - Milwaukee, Wisconsin.**

**Columbia St. Mary's Hospital, Ozaukee Campus - Milwaukee, Wisconsin.**

**Johns Hopkins Hospital, Medical Towers - Baltimore, Maryland.**

**EDUCATION**

**Washington University School of Medicine/BJC Health Care, BJC Institute of Health at Washington University - St. Louis, Missouri.**

**Moraine Valley Community College, Campus Security Upgrades Package 4 - Palos Hills, Illinois.**

**Moraine Valley Community College, Campus Fiber Optic Survey and Documentation - Palos Hills, Illinois.**

**Moraine Valley Community College, Campus & Control Room Security Upgrades - Palos Hills, Illinois.**

**College of DuPage, County Security Upgrades - Glen Ellyn, Illinois.**

**Northwestern University, Fire Alarm and Security System Enhancements** - Evanston, Illinois.

Moraine Valley Community College, Remote Campus Security Upgrades – Blue Island/Tinely Park, Illinois

**University of Illinois, Police Station** - Chicago, Illinois.

**University of Vermont & State Agricultural College, Emergency Operations Facility Upgrades** - Burlington, Vermont.

**Qatar Education City**, Doha, Qatar

# Clinton Morris, RCDD

## **Education**

B.S., Economics and Marketing, University of Kansas  
Journeyman Electrician, IBEW NECA Technical Institute

## **Years Experience**

Total Industry Years - 12

## **Professional Registration**

BICSI, Registered Communications Distribution Designer

## **Professional Achievements**

Mr. Morris is an electrician, communications designer and consultant with specialized professional competence in systems design, evaluation, testing, project management, construction administration and implementation using integrated state-of-the-art solutions. Clint has extensive experience in the development of construction documents, specifications, schematic designs, and drawings for the purpose of a competitive bidding process. Clint's excellent communication and leadership skills strengthen his broad knowledge base in designing and managing multiple complex enterprise implementations.

## **Project Experience**

### **TRANSPORTATION**

**O'Hare International Airport, Automatic Transportation System Security Upgrades - Chicago, Illinois.**

### **GOVERNMENT**

**United States Postal Service - Forest Park, Illinois.**

**United States Postal Service, O'Hare Airport - Chicago, Illinois.**

**Modernization of the Margaret Chase Smith Federal Building and United States Courthouse, General Services Administration – Bangor, Maine.**

**Theory and Computing Sciences (TCS), Argonne National Laboratory – Darien, Illinois.**

**Cook County Department of Corrections and Courthouse Video System Upgrade – Cook County, Illinois.**

**Pope Air Force Base, Site and Facility Upgrades – Fort Bragg, NC**

**Fort Bragg, Site and Security Upgrades – Fort Bragg, NC**

**Vandenberg Air Force Base, Site Wireless Design – Vandenberg AFB, CA**

### **Utilities**

**City of Chicago Department of Water Management, Jardine Water Purification Plant Campus Perimeter Security Surveillance - Chicago, Illinois.**

**City of Chicago Department of Water Management, 39th and Iron New Warehouse and Maintenance Facility Security Design - Chicago, Illinois.**

**City of Chicago Department of Water Management, Facilities Perimeter Protection Design and Enhancements (12 Pumping Stations, 2 Purification Plants) - Chicago, Illinois.**

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**City of Chicago Department of Water Management, South Water Purification Plant Main Gate and Entry Drive Design and Augmentation - Chicago, Illinois.**

**City of Chicago Department of Water Management, South Water Purification Plant New Chlorine Faculty Security Design - Chicago, Illinois.**

## **FINANCIAL**

**Bain and Company, 190 South LaSalle - Chicago, Illinois**

**JP Morgan Chase - Global**

**Chicago Board of Trade, Financial Trading Floor – Chicago, Illinois**

**Fidelity, Lakeside Data Center – Chicago, Illinois**

**Intercontinental Exchange, Lakeside Data Center – Chicago, Illinois**

**Chicago Board of Options and Exchange – Chicago, Illinois**

## **COMMERCIAL**

**World Kitchen Office - Rosemont, Illinois**

**Microsoft, 4<sup>th</sup> Generation Data Center Concept**

## **Health Care**

**Blue Cross Blue Shield – Chicago, Illinois**

**Children's Hospital, Administration Offices** – Chicago, Illinois

**EDUCATION**

**Loyola University, Information Commons** – Chicago, Illinois

**Moraine Valley Community College, Campus Security Upgrades Package 4** - Palos Hills, Illinois.

**Moraine Valley Community College, Campus Fiber Optic Survey and Documentation** - Palos Hills, Illinois.

**Moraine Valley Community College, Campus & Control Room Security Upgrades** - Palos Hills, Illinois.

**Northwestern University, Kellogg School of Management** - Evanston, Illinois.

**Moraine Valley Community College, Remote Campus Security Upgrades** – Blue Island/Tinely Park, Illinois

**University of Illinois, College of Civil Engineering Newmark Student Center** - Chicago, Illinois.

# William W. Culhane

Architect, Program Manager, Owner Representative, LEED<sup>AP</sup>

## **Personal Characteristics**

- Highly skilled in the development and implementation of well organized planning
- Motivating people to work together towards a common goal
- Exceptional skills in casting a common vision and establishing a work plan
- High ethical standards in looking out for the best interest of others
- Experienced in detailed and technical aspects of design, architecture and construction
- Trusted confidant providing valued guidance and direction

## **Expertise**

- Experienced Team Leadership for large scale projects with multiple stakeholders
- Technical Expertise in Design, Documentation, Specifications and Contracts
- Detailed Organization in Programming, Planning, Implementation and Oversight
- Proactive Problem Solver to avoid pitfalls or obstacles to getting the job done
- Highly developed presentation skills
- Guiding the client to a better solution through leadership and teamwork
- Creative problem solving to eliminate barriers to a successful project

## **Professional Achievements**

- 25 year history of successful projects
- Established project team for \$178 million Van Andel Institute Phase II, hiring all consultants and contractors
- On site architect of record for all three phases of \$220 million DeVos Place Convention
- Project Manager for \$50 million Mercy Health and Wellness Centers in Cincinnati, Ohio
- Project Manager for \$50 million Meijer gas station expansion covering four states
- Project Manager for rehabilitation and fitness element of \$120 million Celebration Health Hospital, Orlando, FL
- On site architect for multiple church projects ranging from \$5.8 million to \$38 million
- Experience with the majority of general contractors in West Michigan and several national general contractors

## **Significant Project Awards**

- Van Andel Institute- Phase II, multiple ABC awards
- DeVos Place Convention Center, multiple ABC Masonry Institute of Michigan, GV/AIA awards

- Mercy Health and Wellness Centers
- Celebration Health Rehabilitation and Fitness Center
- Central Wesleyan Church, ABC awards
- Resurrection Life Church, ABC awards
- Meijer Inc, Outstanding Performance as Project Manager, multiple projects

### **Career History**

- Independent Consultant, Architect, Program Manager, Owner Representative 2010 to Present
- Culhane & Fahrenkrug Consulting LLC, Founding Member 2005 to 2010
- Progressive AE, Construction Services Studio Leader/ Share Holder 1997 to 2005
- Integrated Architecture, P.C., Project Manager, Associate 1994 to 1997
- SSOE, Inc., Architect, 1991 to 1994
- MM/A & Associates, Inc., Architect, Client Manager 1990 to 1991
- Chenoweth & Associates, Architects-Construction, Designer/ Intern Architect 1988 to 1990
- Hull-Stephens & Associates, Intern Architect (intermittent) 1985 to 1987
- Munsell and Associates, Structural Engineers, Field inspector (intermittent) 1985 to 1987

### **Volunteer and Community Service**

- Junior Achievement, Forest Hills Public Schools
- **Project Charlie**, Forest Hills Public Schools, Drug avoidance and resistance through education and training
- Northeastern Little League
- West Michigan Express Baseball Club
- YMCA youth sports
- Forest Hills Public Schools, freshman boys basketball coach
- Forest Hills Public Schools, boy's baseball program
- ACE mentorship, Grand Rapids Public Schools
- ADC mentor, Grand Rapids Public Schools
- Young Architects Forum, Grand Valley Chapter
- Blythfield Hills Baptist Church, Sunday school teacher and chaperone
- Our Lady of Sorrows, Middle School girls softball

### **Education**

- Lawrence Technological Institute, Bachelor of Architecture, 1989
- Lawrence Institute of Technology, Bachelor of Science in Architecture, 1987
- Mott Community College, General Studies, 1983
- Genesee Area Skill Center, Architectural Technology and Graphics, 1982
- Elizabeth Ann Johnson Memorial High School, 1982

### **Registration**

- Licensed Architect, State of Michigan, 1989
- United States Green Building Council, LEED Accredited Professional, 2004

### **Continuing Education**

- Professional Liability Seminars, DPIC
- AIA 201 contract administration and enforcement
- USGBC LEED exam seminars
- First Aid first responder and CPR certification
- Microsoft SharePoint, New Horizons Computer Training

# Management Summary, Work Plan

## Approach

Our approach includes technical expertise as well as personal expertise in leading a group through the entire planning, installation and implementation portions of the technology work.

Each stakeholder has as voice in the planning of the technology systems since they will be the ones using or managing the systems. CommTech Design brings a wealth of knowledge of what is possible and what other clients are doing with their technology systems.

We present possibilities and then lead the group down a path that allows them to provide input and fully understand how things will work and how the technology will help them do their job.

With a good plan we budget for everything and bring any discrepancies between the needs and the budget realities back to the group for review and to solve the problem.

Throughout the design and implementation process we keep everyone informed through meeting minutes that provide a complete update as to what is happening regarding technology.

During the installation and at the end of the project we specialize in closing out the systems installation to ensure the systems are installed as designed and work as required.

## 3 PROJECT WORKPLAN

Technology varies between different entities. Sometimes the technology implemented is a function of the beliefs of one or two people who have a belief about what is required.

Technology is also sometimes born of the financial abilities of a client

We believe that technology should be adapted to the requirements of the employees and those that will be utilizing the technology in their work. Directors and employees should each have a say in what is installed and how it is used.

Whatever the budget, CommTech Design can design a system that will allow the technology to integrate into the building and the work processes

### Planning

On all our design projects, CommTech Design goes through extensive planning and design meetings with all stakeholders to understand what they do and introduce different technologies for them to review.

When the stakeholders are informed of the possibilities they are better equipped to make decisions and understand how technology can work within the office and throughout the company.

Overall, technology should serve those that will be using it. We don't put technology in place because it is the latest and greatest. We design technology systems to meet the needs of the users. When the needs of those groups are met then it is a seamless introduction and use of the systems.

## Master Plan

This document that CommTech Design will author as part of this proposal will include a write-up on the technology plan for the building.

A quick glance at this document will allow all architects and administrators to understand what will be installed in the building. They can refer to this document throughout the process to understand what is required of them in the design process.

This will list all the technologies to be installed at each building and when they will be implemented.

For Example:

### Office Space

General offices will be provided with an upgraded Technology which could include:

- New Data Cabling
- Video Presentation Systems
- Sound masking

### Conference Rooms

- Audio and Video Systems
- Data Cabling

### General Spaces

- Sound Masking and Paging
- Wireless networking
- Video Security
- Access Control for both interior and exterior doors

## Budgeting

With a complete understanding of all the technology systems required in the building, CommTech design then works on a Technology Budget that encompasses all aspects of the systems and their installation and use.

This is the playbook we will work from throughout the life of the project. When systems are bid and when money is spent we will be able track our budget and determine what has been spent and what is available for each project.

These estimates are based on real-world costs and bids that have been recently received.

We have included a sample budget spreadsheet in this proposal to allow you to review what sort of detail you can expect from CommTech Design.

## Design

Once we have a good plan we move into the design portion of the work. This is where we actually design and specify the equipment we want and how we want them to work.

CommTech Design provides some of the clearest and most detailed drawings and specifications in the industry. We fully believe that almost all the technology systems bid should include detailed drawings. This is a large benefit to not only the contractor so that they fully understand what is required of them but also to the owner so that they can see what is going to be installed.

Not only do good drawings and specifications allow the contractors to bid “Apples to Apples” but allow all other engineers and architects to fully coordinate their systems with the technology systems.

We have included some sample drawings and specifications that show what type of detailed documents that DTMB can expect with a design from CommTech Design.

Once we have coordinated all the other engineers work and the architects plan with our technology we put those documents together in a package that can be bid. This includes a detailed list of the equipment and specifics on how they are to be installed.

### Common Mistakes

There are numerous opportunities to make mistakes throughout the planning, design and implementation process of a technology upgrade. Good planning can circumvent most of these mistakes.

1. Not getting input from all stakeholders allows systems to be installed and some question the solution and its installation.
  - a. Sometimes teachers are not involved enough in the design process and this can cause issues.
2. Poor budget planning sometimes leads to bids that are higher than the funds available and cuts have to be made that affect the type and usefulness of the systems.
  - a. If the systems have to be “right-sized” then that should be done during design and not after bidding. Bid a system you can afford and be prepared to add things to it if funds are available.
3. Drawings are not provided as part of the bid and there is not enough information for the bidders to provide comparative bids.
  - a. CommTech Design fully believes that drawings should be provided for each building where systems are to be installed.
  - b. When drawings are not provided it creates opportunities for questions or suppositions by the contractor that were not the intent of the designer.
  - c. Floor plans, schematic connectivity and details are provide with each of our design packages
4. Raceways are not fully covered in the design package.
  - a. All raceways should be noted or the contractor will ask for additional money to install them.
5. Not enough testing at project conclusion.
  - a. The designer should walk-thru each room and test each room to ensure that all systems are installed as designed.

Through our extensive experience CommTech Design has noted the mistakes above that have been made by others and works to avoid them in our designs.

### Selection

Part of our technology service is working with the owner and construction manager during the bidding process to ensure that all the contractors have the answers required to provide a complete bid.

After bids are received we interview the low bidders to ensure they understood the documents and that they intend to provide a complete response.

We will provide a document to the owner detailing the bids and why we believe one is the best choice for the client

## Implementation

During the implementation portion of the design we work with the contractor, owner and construction manager (if one is engaged on the project) to oversee the installation and help ensure that what was bid is actually installed and able to be used.

During implementation we enforce the training requirements so that everyone is fully trained on the use and management of the technology systems.

For the primary technology projects we will hold meetings and provide meeting minutes of the progress. These minutes act as a way to track progress and allow the owner to gauge how things are being implemented.

CommTech will provide site reviews and subsequent reports to the owner detailing the work and how it is progressing. These reports will include:

- What is occurring on site
- The status of the work in regards to the schedule
- General work practices
- Photos detailing the work completed
- Current Change orders and Bulletin
- Notes from our project meetings.

By being a complete systems designer and by working with numerous construction managers and architects we have a complete understanding of the construction process and work flawlessly with all other parties when it comes to technology installation.

At the end of each project we complete a full review of the work and provide punchlists for items the contractor may not have completed or may have installed incorrectly. These allow the contractor to work towards the system the owner wants.

During installation we update our overall technology budget spreadsheet to keep track of our overall budget process and ensure that money is available for all the systems included in the master plan.

A great design can be destroyed by lack of oversight in the implementation phase. CommTech Design is onsite at times throughout the entire project and will work for the owner to get them the latest technology, installed correctly on-time and on-budget.

## Ongoing Warranty oversight

The owner wants to understand that their systems are working as required and that the contractor is providing the warranty service that was required as part of their bid.

CommTech will conduct walk thru's at 6 months and 12 months after substantial completion.

At this time we will review as-built drawings to see if anything has changed. We will also review all software to ensure that the contractor has provided and upgraded all systems as required to stay at the latest software revision.

CommTech will be available for the duration of the warranty period and as long as the owner wishes. We do not build relationships for a project, we want to build relationships that last.

Anytime after the implementation and installation the owner can call CommTech to deal with issues or just discuss how things are working and what may be available to upgrade or change items. We will solve problems for the life of the system.

# Visioning Document

When any client embarks on a technology upgrade or renovation it can seem intimidating. What do we want to provide for our administrators and employees to keep the technology current? What do we have that is working? What will be required for the infrastructure to last 10, 15 and 20 years?

These questions may not all have definite answers but with discussion and design we design systems that will exceed today's needs, meet tomorrow's needs and build an infrastructure to last decades.

CommTech has devised this document to assist the owner and their staff in talking about all aspects of technology and sparking discussion and thought.

We do this by going thinking about what the client does and what they want to do. We use the following as a framework and points of discussion to determine where you want to go:

## Technology Planning Discussion Framework

As each client embarks on the building process and plans for technology upgrades and additions it is important to be ready to discuss all aspects of technology.

The opportunity that the renovation provides comes around infrequently enough that each client should spend wisely on products and systems that will both enhance the work process and last a long time.

The following document will prompt the client to think about what is possible today, where you may be in five years and what technology systems will best serve your needs for the foreseeable future.

The document is broken up into multiple sections. In each section we present technologies and ask questions about how that technology could or should be implemented in your building. The sections are:

1. Data Cabling
2. Network systems including Wireless
3. Servers and Software
4. Computers/ Laptops /Student Devices
5. Audio and Video in the Classroom
6. Specialized Audio and Video Systems
7. Security Systems.

## **Data Cabling**

Most cabling today is CAT-6 for both voice and data connectivity. There are some things to think about in regard to cabling:

1. How many cables will you require per space?
  - a. Will you share one for the telephone and computer as you use the telephone as a switch in each room? One cable feeds the telephone and then a patch cable connects to the computer from the telephone.
  - b. Will you want to plan for computers in the conference and meeting rooms? Where would they be in each room?
  - c. Where will we want data cables for wireless access points and for video security cameras?

## **Conference room Audio/Video**

The conference room of today and the future is most certainly going to keep introducing newer and better technology to assist in meetings and collaboration. The system we install should be flexible and expandable to support multiple different input devices that connect to one or more output devices.

1. Some meeting or conference rooms require a podium type installation as seen below:



2. How would you use the document camera?
3. Is a microphone important in each room?
4. What do you see as the future of group interaction in the conference rooms?
  - a. Do employees react well to the use of technology in the room?
  - b. Will employees have smartphones/mobile devices that they use in the room?
5. Would your employees use an interactive board/screen at the front of the room?
  - a. Would you still want a markerboard at the front of the room? How important is markerboard in your classroom?
  - b. If you had a short throw, interactive projector that used the markerboard would you also want to use a larger projection screen for a second video output? See the picture below:



- c. Are there any types of devices that you would like to connect to the projectors and audio system other than the podium PC?
  - i. MP3 player
  - ii. Video camera

- iii. Ipod
- iv. Tablet PC
- v. Laptop
- d. Would you want any automated control of the AV system?
  - i. How would you recommend the room to be used?
  - ii. Would you want students to present from the podium?
- e. Would you want to record meetings and upload them for viewing later by students that wanted to review something or those that were absent for the lesson?
- f. Would you like to do any type of video conferencing/Skype interactions with other offices?

### **General Technology**

There are many different types of systems inside a building. Businesses have many different ways that they use technology. Determining how these systems are used will be advantageous in designing new systems in the building.

1. How important are clocks in a building?
  - a. Should they be analog or digital?
2. How is a paging/sound masking system in a building required?
3. Would an LCD video signage system be used?
  - a. Announcements
  - b. Lunch Menu?
  - c. Who would be in charge of content and making changes? Very important to identify this person or the LCD's and signage system will be underutilized.
4. Where are large presentations made?
  - a. What types of technology could be used to support large presentations?
  - b. Video projectors, Audio Systems?
5. Would a CAT lab (Center for Advanced Teaching) be utilized in your office?
  - a. A CAT lab would be setup to allow small groups to complete technology enriched projects and then share those with others.
  - b. The room would have up to six different LCD screens or projectors each tied to a computer
  - c. The leader would be able to show their screen on all devices or choose any student PC to share with everyone.
  - d. Each group can work independently or take part of a project to eventually integrate a large class based project.



e.

### **Security Systems**

Each client will have to take into account the safety and security of their staff and the physical objects in each building.

That includes controlling who enters the buildings and monitoring inside and outside of the building.

Security is often an administrative decision. As a group the client decides what the threats are to the building and staff. Then they decide what types of technology can be used to lessen those threats then we plan for the implementation as part of the building project.

1. How is the building exterior secured? Keys or proximity ID cards?
  - a. Is there an alarm system for after hours?
  - b. If there is an alarm system how is it monitored? Owner or third party?
2. How are interior spaces secured? Keys?
3. Is it important to have video security cameras in the buildings?
  - a. Should they be in the hallways?
  - b. Exterior of the building?
  - c. What do you want to see?
    - i. Who enters and exits the building?
    - ii. Cars and people around the outside of the building?
    - iii. Is it important that you see every common area or just certain areas that are known to be problem areas?
4. How are visitors dealt with?

- a. Can a visitor enter the building without going through the office and signing in?
- b. When are building doors open? When should they be locked?

### **Other technologies and the Future**

1. What types of technology have you seen that might be used in the office environment?
2. Technology is great but each client should include discussion about how this technology would support their work.
3. How will video and audio fit into the teaching environment in 5 years?
4. Think about these small devices that get smaller and smarter? Will these be the de-facto "spiral notebooks" of the future? Used to write on, and turn in assignments?

Think about what you use today and what you might use in the future.

Challenge yourself to think about how you work today and what type of technology might assist in making that a better workday.

## **The Technology Future**

Many times when working with client we get asked what technology is worth the investment and which are flashes in the pan

You can't go wrong with a great infrastructure. The cabling systems I designed in 1995 are still in place and continue to serve the owners networking needs. We always begin with a great cabling infrastructure.

Add networking.

This means a high-speed backbone with direct access to the servers and internet. Build a large network "road" and then fill it over the next decade.

Add wireless.

It is assumed in today's designs that you have to have between 2 and 3 devices per employee. They will have a laptop, tablet and a smartphone; all vying for wireless network bandwidth. Design systems that are able to support this type of a device density and you will have a wireless network to use for years to come.

Add AV Systems.

CommTech tries to design conference room AV that allows anyone to walk into the room and immediately understand the technology and use it. Invest in a projector, podium, audio system and document camera.

Add Security:

These days it is almost a given that the client will have Video Security installed in the buildings. In addition to video security they utilize access control to better keep the building secure. The access control system can save the time of a custodian to lock and unlock doors by scheduling all doors to be open or locked. Seriously consider security of the building.

Short Synopsis of technology recommendations:

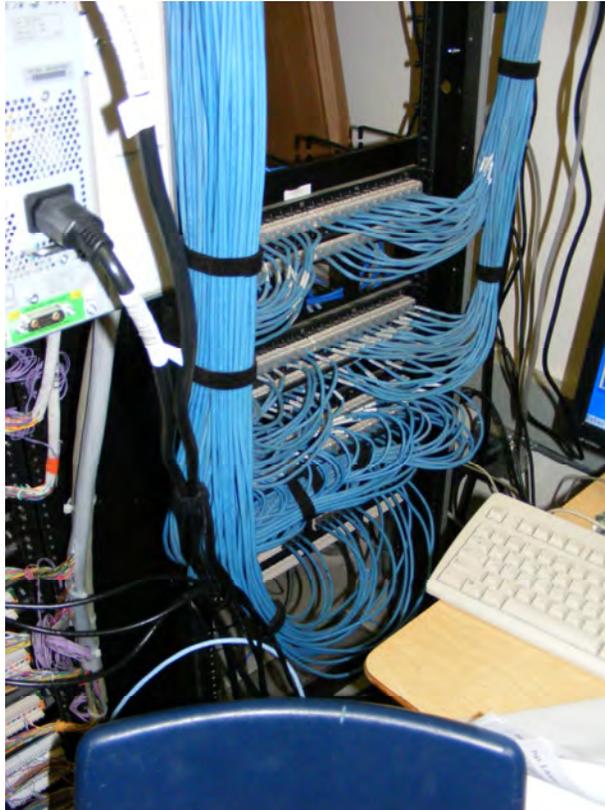
1. Build a great technology cabling infrastructure.
2. Buy a high speed data network
3. Install wireless everywhere with numerous user devices per student planned
4. Install AV in the classroom but don't spend too much on flash and cool things that don't add to the educational component or that teachers won't use.
5. Security should be strongly considered. Not just for security but for manpower issues.

6. Don't install it because you saw it at a conference last week. Install it because you can use it to further your curriculum and learning/teaching style!

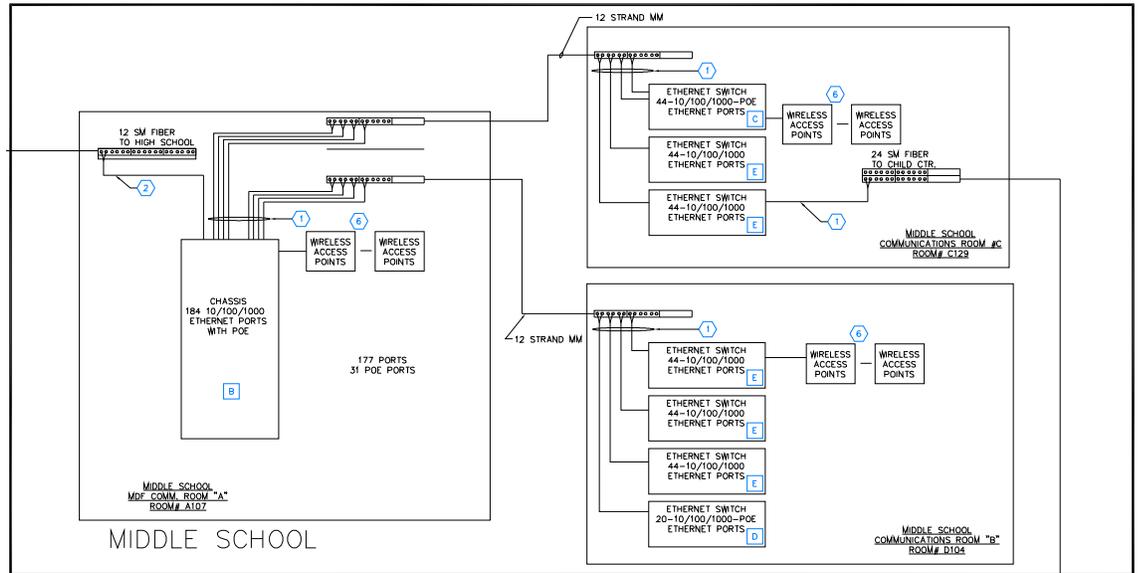
## Samples of our Designs

A. Technologies: ALL PHOTOS IN THIS SECTION ARE FROM COMMTECH PROJECTS

- a. Wide Area Network: CommTech has designed networks for numerous College Campuses. Kent State University was over 100 buildings with six satellite campuses. Cleveland State University was 26 buildings in downtown Cleveland, Ohio. We have designed Wide area networks for Ravenna, Sparta and Montague Schools. Bret Emerson and Joe Lemon
- b. Local Area Networks. We designed Ethernet networking for almost all the schools we have worked with. Recently we designed networks for Montague and Ravenna Schools. Bret Emerson and Joe Lemon



Network patch panel and connections



### Montague Schools Data Network Design for Middle School

- c. Video Distribution over IP. We have designed systems using various IP video distribution systems. A new solution on the street is Southern Vision Systems. This is a cost effective solution to implement CATV services via an IP network. Bret Emerson and Joe Lemon
- d. Video Production Carts. This is a teacher podium/video cart that is able to be used for teacher presentations. This cart was a custom design by CommTech Design. We worked with the manufacturer on the design.



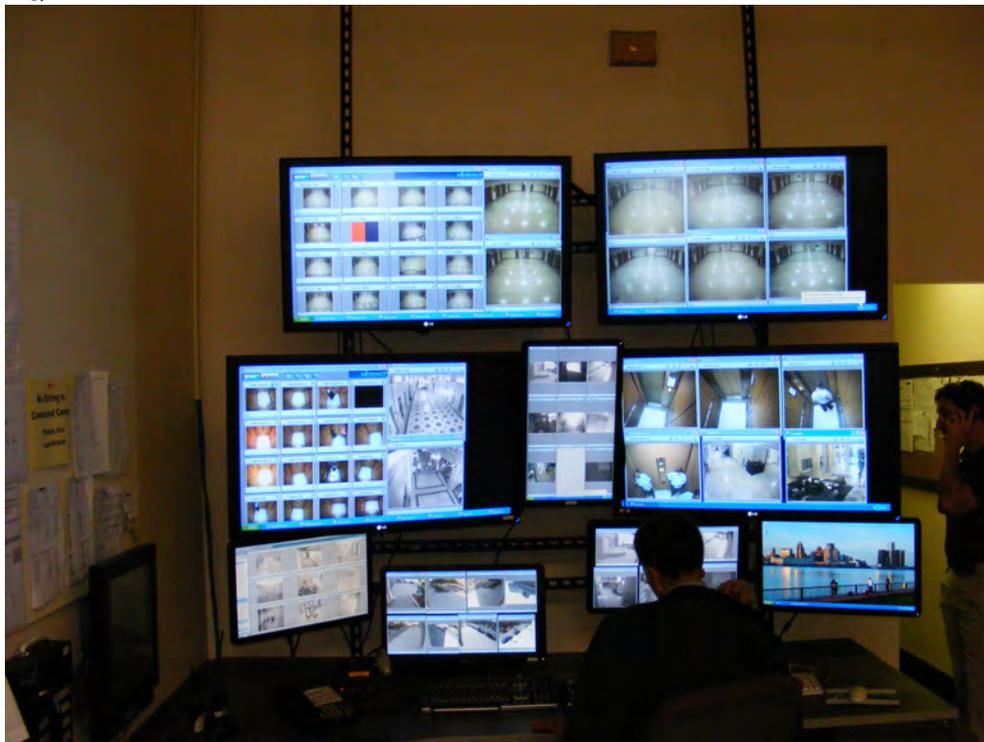
Montague Schools Video Cart/Podium for each Middle School Classroom

- e. Classroom Technology: We believe we are an innovator in the classroom technology arena. We make sure that the systems in classrooms are easy to use and cost effective. Recent designs at Ravenna and Montague are being implemented. Bret Emerson



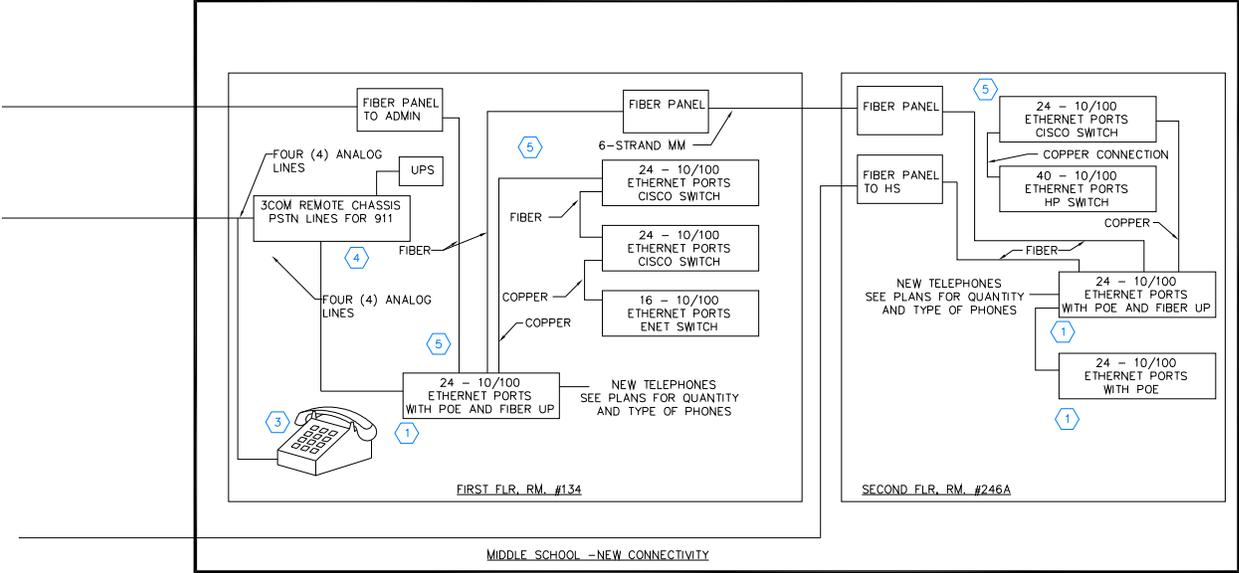
Montague Schools Middle School Classroom. Just installed last week. Two projector system including interactive white board using the existing markerboard

- f. Security Systems: We pride ourselves at being a leader in the security design arena in Michigan. We have designed systems for the State of Michigan to cover their buildings in downtown Lansing as well as the new Michigan State Police HQ.



Security Monitoring room at State of Michigan Cadillac Place. Fully designed by CommTech

- g. Telecommunications systems including VOIP. We provide complete specifications and drawings so that contractors are not confused and can easily bid out the systems to meet the owner's needs. Bret Emerson



Actual design detail for Jonesville Schools Telephone system connectivity at their Middle School

- h. Structured Cabling: Bret Emerson has been a BICSI RCDD for 15 years and started installing cabling before becoming a designer. This was all after receiving a degree in Communications Systems Management from Ohio University. Bret Emerson and Joe Lemon



This is the data center cabling design for a recent CommTech Design client.

- i. Server Farms / Storage networks. We are working with Montague to move them to a virtual server network. We are also working with Traverse City on the design of their new data center. Bret Emerson



Data Center ready for servers. Designed by CommTech Design

- j. Workstations. We have a specification that we use for bidding computers. This is used to purchase and allow the contractor to install and setup the PC's if that is what the owner wishes. Bret Emerson
  - k. Wireless Technology. We have a specification and drawings that allow the contractor to purchase the latest in wireless technology. We have designed systems for A-B-G and N networking.
  - l. Bret Emerson has been the primary designer of our systems and will be the engineer for your system along with Joe Lemon
- B. The project Manager will be Bret Emerson and he is located in Rockford, Michigan, just north of Grand Rapids.



- C. We have a great time while working on these projects. We lead people through a process of decision making and balancing those decisions against the system budget. We understand that not everyone knows about technology and how it can work. Explaining

why something might be a better solution or how to look at a topic in another way is important when determining what will really help in the education process.



Bret Emerson leading a group discussing Technology for an Early Childhood Center

- D. When working with existing systems it is easy to say, “let’s replace it” when there might be quite a bit of life left in those systems. We work with the Tech group to understand how the systems were installed and how they worked. Then we can identify possible upgrades to make that system last longer while still meeting the districts needs.



3741 Windwood Drive Rockford, Michigan 49341  
www.commtechdesign.com

The following pages include samples of our work. Included is an example of a:

Org. Charg

Bulletin Document

Budgeting Spreadsheet

Detailed Drawings

Sample Specifications

Meeting Minutes from a current project

Change order from a project

General project flyers

What you should know when choosing a Technology Consultant

We are also including some documentation about CommTech Design that will allow you to make an informed decision about who you should choose as your technology Designer.



Questionnaire for Professional Services
Department of Technology, Management and Budget
2013 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Architecture, Engineering, and Landscape Architecture Services
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: CommTech Design Inc.
Address: 3741 Windwood Dr. NE Rockford, MI 49341
Telephone and Fax: 616-863-8132 -None
Website: www.commtechdesign.com E-Mail: Emersonb@commtechdesign.com
Professional(s) federal I.D. number(s): 20-4402125

If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work:

2. Check the appropriate status:

Individual firm Association Partnership Corporation, or Combination – Explain:

If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: March 2005, Michigan

Include a brief history of the Professional’s firm: Started in 2005 we have been a successful consulting and design firm since then. We have always been based in Rockford, Michigan. Our work has been technology and security design for schools, Universities, Hospitals and corporations as well as the State of Michigan

Provide an organization chart depicting all personnel and their roles/responsibilities.

Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions.

**ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED**

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked. Identification of specialties will not exclude selected firms from project types, but will assist the DCD Project Directors in matching firms with projects.

- ADA facility assessment and remodeling
- Boilers and steam systems
- Bridges – pedestrian and vehicular
- Building and structure additions
- Building envelope investigation, repair, upgrade
- Correctional facilities – Technology and Security Design
- Door and window replacement
- Fire and security alarm systems
- Fish passage structures
- General architectural and/or engineering design
- HVAC equipment replacement, upgrade, selection
- HVAC controls replacement, upgrade, selection
- Interior remodeling and renovation
- Laboratory facilities
- Landscape architecture
- Land Planning
- Locks and dams
- Maintenance and facility preservation
- Marine work - boat launch facilities, docks, harbors
- Parking and paving
- Roof repair, restoration and/or replacement design
- Site surveying
- Stormwater management and drainage plans
- Structural investigation and assessment
- Toilet and/or shower room remodeling or design
- Trail design and development
- Wastewater systems
- Water supply systems
- Water diking systems, water control structures

**ARTICLE 3: PROJECT LOCATION**

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

- Western Upper Peninsula (west of Marquette)
- Eastern Upper Peninsula (east of Marquette)
- Northern Lower Peninsula (north of Grayling)
- Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)
- Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)
- Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)
- Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)
- Southeastern Lower Peninsula (east of Chelsea, south of I-69)

**ARTICLE 4: CONTRACT UNDERSTANDING:** The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

- 4.1 Is it understood that your firm is required to respond to small projects (less than \$25,000) as well as large projects?  
Yes  No
- 4.2 Is it understood that there is no guarantee of any work under this contract?  
Yes  No
- 4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?  
Yes  No
- 4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)  
Yes  No
- 4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?  
Yes  No
- 4.6 It is understood that your firm must obtain a State of Michigan, Department of Civil Rights Certificate of Awardability (see RFP for information regarding the Certificate of Awardability)? If your firm currently has a Certificate of Awardability, provide its expiration date. \_\_\_\_\_  
Yes  No

**ARTICLE 5: CAPACITY AND QUALITY**

- 5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services. Our designs undergo a three step review process. We create Schematic Design drawings, Design Development drawing and specs and finally Contract Drawings and Specifications. The designer who is the project principal works with the owner to review the drawings at each step. Prior to the final documents the design is reviewed by another of the engineers to review its completeness and suggest changes that may make the design more clear.
- 5.2 Has your firm been involved in claims or suits associated with professional services errors and/or omissions?  
Yes  No
- If yes, explain: \_\_\_\_\_
- 5.3 Will there be a key person who is assigned to a project for its duration?  
Yes  No
- 5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

DTMB design is the agent for the State Agency. They are in charge of the procedural and completeness of the design package. They work on behalf of the Agency to ensure the Agency has a competent design professional and that the design professional provides a complete design. The DTMB helps both the Agency and the professional through the design process and eventually the installation oversight process. On previous projects we have worked extremely well with all DTMB D & C employees on the projects we have completed.

- 5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding. The specifications we write include minimum requirements for each product. We also try to list three manufacturers for each part so that multiple vendors can provide competing products. If a bidder proposes a product that is not listed in the specifications then we review the product to determine if it will provide the desired outcome and if the company making the product is a reputable company with quality products.
- 5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction. This is a little bit different as the bidder has provided a bid based on the products in the specifications. Where the specifications do not list specific products then leeway can be provided. Where specific products were detailed we usually expect the contractor to provide the specified product unless there are extenuating circumstances. We try to find out if there are any substitutions during post-bid meetings so we are not surprised at the time of submittals.
- 5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects? Each meeting is documented with meeting minutes that are published to all those that attend.
- 5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?  
Yes  No
- 5.9 Describe your method of estimating construction costs and demonstrate the validity of that method. Over the years we have come up with a great solution for estimating costs. Our master list of technology equipment constantly evolves. When we estimate a project we enter the quantity of each piece of equipment into the spreadsheet and calculate the associated labor. This spreadsheet includes each possible piece of equipment down to the patch cables and includes management, training and software costs.
- 5.10 Describe your approach to minimizing construction cost over-runs. We try to minimize cost overruns by estimating the costs in the beginning and giving the owner information about the costs and then trying to get the entire system within their budget. Our work on the design side includes enough information to limit the changes and unknown costs that might otherwise occur during construction. We think like contractors and try to identify all questions during design and include that work in the base bid.
- 5.11 What percentage of construction cost should be devoted to construction administration (office and field)?  
7%

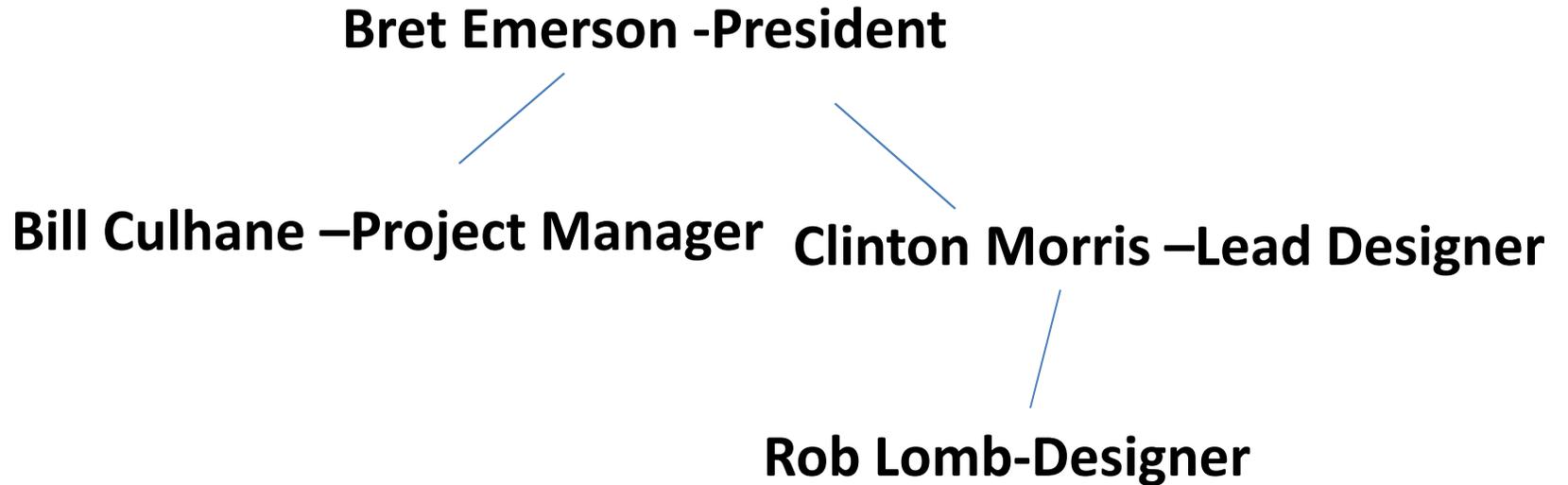
- 5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?  
100% through CommTech Design. Some designers are contract employees.
- 5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? (A typical project might be one involving several disciplines and in the neighborhood of a \$25,000 fee.)  
7 Days
- 5.14 How do you assess whether a construction bidder is responsive and responsible?  
We have a great relationship with most contractors of technology in the State of Michigan. We have worked with many of them on previous projects and know their capabilities. To identify if a contractor is responsive to the specific project we conduct a post-bid interview and review all standard requirements and discuss all aspects of the project to make sure they accounted for all items and labor in their bid response.
- 5.15 Describe your firm's understanding of Sustainable Design and LEED Certification.  
In technology there is a limited opportunity to implement LEED points. We look at sustainable design in designing a complete technology infrastructure that will be used for many years and not be required to be removed or replaced for the foreseeable future. Install it once and use it for many years is our philosophy.
- 5.16 Describe your experience with similar open-ended contracts.  
We have not had many open ended contracts such as this. We have had numerous customers who we have worked with for many years. Many of our architectural customers continue to call us and request us to work on their projects.
- 5.17 Describe your methodology for obtaining information about the existence and condition of an existing, facility's components and systems.  
We investigate the existing and take pictures of what we find. This includes investigation of each communications room and each technology system. We get down to the cable type and cable labeling to determine how something is currently connected. We work hard to then transfer that information to a set of documents that the contractor can understand and create their own complete scope of work.
- 5.18 Describe your approach to securing permits/approvals for the following: campgrounds, critical dunes, coastal zone management, projects adjacent to Michigan lakes and rivers.  
We have not run into this type of work on the technology side of design.
- 5.19 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.  
As stated in our response above in 5.10 we work diligently during design to think like a contractor and include a complete scope of work into the design. Sometimes items are found or changes are required and we create a bulletin for pricing. The bulletin may include drawings and specifications or special instructions. Once we have a price then we can review that with the contractor to see if the costs seem inline with real world costs. With the scope and price we discuss the change with the owner to determine if we move forward with the change.

# CommTech Org. Chart

**Bret Emerson -President**

**Bill Culhane –Project Manager**   **Clinton Morris –Lead Designer**

**Rob Lomb-Designer**



BELLAIRE HIGH SCHOOL  
PRELIMINARY INSTALLATION ESTIMATE

7/26/2009

Component	Total	Material	Labor in hours	Material Extended	Labor Extended	Total	Subtotal
<b>Cabling</b>							
Faceplates	242	\$ 3.99	0.2	\$ 965.58	\$ 2,420.00	\$ 3,385.58	
CAT-6 Cables	419	\$ 60.00	1	\$ 25,140.00	\$ 20,950.00	\$ 46,090.00	
Jacks	419	\$ 5.50	0.2	\$ 2,304.50	\$ 4,190.00	\$ 6,494.50	
Coax Cables	46	\$ 95.00	1.5	\$ 4,370.00	\$ 3,450.00	\$ 7,820.00	
F Connectors	46	\$ 1.50	0.25	\$ 69.00	\$ 575.00	\$ 644.00	
F-pass-thru	46	\$ 3.50	0.1	\$ 161.00	\$ 230.00	\$ 391.00	
Cable labeling	465	\$ 0.15	0.05	\$ 69.75	\$ 1,162.50	\$ 1,232.25	
Cable testing	465	\$ 0.20	0.2	\$ 93.00	\$ 4,650.00	\$ 4,743.00	
							Subtotal
							\$ 70,800.33
<b>Paging/Audio</b>							
Paging Speakers	138	\$ 45.00	0.5	\$ 6,210.00	\$ 3,450.00	\$ 9,660.00	
Speaker Cabling	138	\$ 20.00	0.5	\$ 2,760.00	\$ 3,450.00	\$ 6,210.00	
Paging MIC	2	\$ 90.00	1	\$ 180.00	\$ 100.00	\$ 280.00	
Paging Core	1	\$ 5,000.00	40	\$ 5,000.00	\$ 2,000.00	\$ 7,000.00	
Amplifier	2	\$ 750.00	2	\$ 1,500.00	\$ 200.00	\$ 1,700.00	
Volume Control	8	\$ 30.00	1	\$ 240.00	\$ 400.00	\$ 640.00	
Bell Controller	1	\$ 1,000.00	8	\$ 1,000.00	\$ 400.00	\$ 1,400.00	
CD/Tuner	1	\$ 700.00	3	\$ 700.00	\$ 150.00	\$ 850.00	
Master Clock		\$ 5,000.00	16	\$ -	\$ -	\$ -	
Digital Clocks	69	\$ 30.00		\$ 2,070.00	\$ -	\$ 2,070.00	
Clock Wiring		\$ 25.00	1	\$ -	\$ -	\$ -	
							Subtotal
							\$ 29,810.00

BELLAIRE HIGH SCHOOL  
PRELIMINARY INSTALLATION ESTIMATE

7/26/2009

Component	Total	Material	Labor in hours	Material Extended	Labor Extended	Total	Subtotal
<b>Classroom AV</b>							
Video Projector	22	\$ 1,500.00	2	\$ 33,000.00	\$ 2,200.00	\$ 35,200.00	
Projector Mount	22	\$ 250.00	2	\$ 5,500.00	\$ 2,200.00	\$ 7,700.00	
Audio/Video Cabling	22	\$ 250.00	2	\$ 5,500.00	\$ 2,200.00	\$ 7,700.00	
VCR/DVD Player	22	\$ 250.00	1	\$ 5,500.00	\$ 1,100.00	\$ 6,600.00	
Amplifier	22	\$ 500.00	3	\$ 11,000.00	\$ 3,300.00	\$ 14,300.00	
Document Camera	0	\$ 1,800.00	1	\$ -	\$ -	\$ -	
Smart Panel Touchpad	0	\$ 2,200.00	1	\$ -	\$ -	\$ -	
Projection Screen	0	\$ 240.00	2	\$ -	\$ -	\$ -	
Crestron Control	0	\$ 1,000.00	2	\$ -	\$ -	\$ -	Subtotal
							\$ 71,500.00
<b>Fiber Backbone Internal</b>							
12/12 Plenum	200	\$ 5.50	0.1	\$ 1,100.00	\$ 1,000.00	\$ 2,100.00	
Fiber Patch panel	2	\$ 400.00	8	\$ 800.00	\$ 800.00	\$ 1,600.00	Subtotal
							\$ 3,700.00
<b>Wide Area Fiber</b>							
Fiber Cable to Elem.	150	\$ 4.00	0.1	\$ 600.00	\$ 750.00	\$ 1,350.00	
Re-work of incoming fiber	1	\$ 2,500.00	80	\$ 2,500.00	\$ 4,000.00	\$ 6,500.00	
Splice	1	\$ 400.00	8	\$ 400.00	\$ 400.00	\$ 800.00	
Innerduct	150	\$ 0.75	0.05	\$ 112.50	\$ 375.00	\$ 487.50	Subtotal
							\$ 9,137.50
<b>Copper Backbone</b>							
100 Pr. Plenum	350	\$ 3.00	0.05	\$ 1,050.00	\$ 875.00	\$ 1,925.00	
100 Pr. 110 block	5	\$ 20.50	3	\$ 102.50	\$ 750.00	\$ 852.50	
110 Vert. Org.	4	\$ 15.00	0.25	\$ 60.00	\$ 50.00	\$ 110.00	Subtotal
							\$ 2,887.50

BELLAIRE HIGH SCHOOL  
PRELIMINARY INSTALLATION ESTIMATE

7/26/2009

Component	Total	Material	Labor in hours	Material Extended	Labor Extended	Total	Subtotal
<b>Comm Room</b>							
Racks	5	\$ 800.00	4	\$ 4,000.00	\$ 1,000.00	\$ 5,000.00	
Plugstrip	7	\$ 85.00	1	\$ 595.00	\$ 350.00	\$ 945.00	
CAT-6 Patch Panels-48	9	\$ 226.00	6	\$ 2,034.00	\$ 2,700.00	\$ 4,734.00	
Voice Tie Panels	2	\$ 226.00	4	\$ 452.00	\$ 400.00	\$ 852.00	
Organizers	15	\$ 48.64	0.25	\$ 729.60	\$ 187.50	\$ 917.10	
Voice Tie Cables	3	\$ 100.00	4	\$ 300.00	\$ 600.00	\$ 900.00	
Patch Panel Labeling	13	\$ 14.28	0.25	\$ 185.64	\$ 162.50	\$ 348.14	
Patch/Drop cables	250	\$ 6.00	0.05	\$ 1,500.00	\$ 625.00	\$ 2,125.00	
Plywood	2	\$ 150.00	2	\$ 300.00	\$ 200.00	\$ 500.00	
Ground Bar	2	\$ 125.00	2	\$ 250.00	\$ 200.00	\$ 450.00	
Ground Cable	200	\$ 0.80	0.02	\$ 160.00	\$ 200.00	\$ 360.00	Subtotal
							\$ 17,131.24
<b>Commons Audio</b>							
Speakers	6	\$ 150.00	2	\$ 900.00	\$ 600.00	\$ 1,500.00	
Cabinet	0	\$ 400.00	2	\$ -	\$ -	\$ -	
Mixer DSP	1	\$ 800.00	6	\$ 800.00	\$ 300.00	\$ 1,100.00	
Amplifier	1	\$ 1,000.00	2	\$ 1,000.00	\$ 100.00	\$ 1,100.00	
Wired Microphone	1	\$ 77.00	2	\$ 77.00	\$ 100.00	\$ 177.00	
Wireless Microphone	1	\$ 902.00	2	\$ 902.00	\$ 100.00	\$ 1,002.00	
Spkr and Mic Cables	6	\$ 75.00	1	\$ 450.00	\$ 300.00	\$ 750.00	Subtotal
							\$ 5,629.00
<b>Gymnasium Audio</b>							
Speakers 01	6	\$ 500.00	2	\$ 3,000.00	\$ 600.00	\$ 3,600.00	
Speakers 02	3	\$ 300.00	4	\$ 900.00	\$ 600.00	\$ 1,500.00	
Speaker Mounts	10	\$ 70.00	2	\$ 700.00	\$ 1,000.00	\$ 1,700.00	
Amplifiers	4	\$ 1,300.00	2	\$ 5,200.00	\$ 400.00	\$ 5,600.00	
Mixer/DSP	1	\$ 1,500.00	4	\$ 1,500.00	\$ 200.00	\$ 1,700.00	
Wired Microphones	3	\$ 77.00	2	\$ 231.00	\$ 300.00	\$ 531.00	
Wireless Microphoens	2	\$ 902.00	2	\$ 1,804.00	\$ 200.00	\$ 2,004.00	
Spkr and Mic Cables	11	\$ 75.00	2	\$ 825.00	\$ 1,100.00	\$ 1,925.00	Subtotal
							\$ 18,560.00

BELLAIRE HIGH SCHOOL  
PRELIMINARY INSTALLATION ESTIMATE

7/26/2009

Component	Total	Material	Labor in hours	Material Extended	Labor Extended	Total	Subtotal
<b>Aux Gym Audio</b>							
Speakers	4	\$ 250.00	2	\$ 1,000.00	\$ 400.00	\$ 1,400.00	
Mixer/Amplifier	1	\$ 1,000.00	4	\$ 1,000.00	\$ 200.00	\$ 1,200.00	
Wired Microphone	1	\$ 77.00	2	\$ 77.00	\$ 100.00	\$ 177.00	
Spkr and Mic Cables	4	\$ 75.00	1	\$ 300.00	\$ 200.00	\$ 500.00	
							Subtotal
							\$ 3,277.00
<b>Video RF Headend</b>							
Channel Elim. Filter	1	\$ 800.00	2	\$ 800.00	\$ 100.00	\$ 900.00	
Modulator	1	\$ 250.00	3	\$ 250.00	\$ 150.00	\$ 400.00	
Amplifier	2	\$ 800.00	2	\$ 1,600.00	\$ 200.00	\$ 1,800.00	
Backbone Coax	300	\$ 2.50	0.02	\$ 750.00	\$ 300.00	\$ 1,050.00	
Taps	2	\$ 500.00	3	\$ 1,000.00	\$ 300.00	\$ 1,300.00	
Combiner	1	\$ 250.00	1	\$ 250.00	\$ 50.00	\$ 300.00	
VCR/DVD	1	\$ 250.00	2	\$ 250.00	\$ 100.00	\$ 350.00	
							Subtotal
							\$ 6,100.00
<b>Telephone System</b>							
Telephone System HS	0	\$ 20,000.00	240	\$ -	\$ -	\$ -	
Remote Shelf	0	\$ 8,000.00	40	\$ -	\$ -	\$ -	
Telephone Sets	0	\$ 400.00	1	\$ -	\$ -	\$ -	
Move existing system	1	\$ 5,000.00	0	\$ 5,000.00	\$ -	\$ 5,000.00	
Voice Mail	0	\$ 12,000.00	160	\$ -	\$ -	\$ -	
							Subtotal
							\$ 5,000.00
<b>Data Networking</b>							
Core Switch	0	\$ 40,000.00	40	\$ -	\$ -	\$ -	
Edge Switch	0	\$ 4,000.00	20	\$ -	\$ -	\$ -	
User Switch	4	\$ 2,500.00	2	\$ 10,000.00	\$ 400.00	\$ 10,400.00	
Wireless Access Point	0	\$ 350.00	2	\$ -	\$ -	\$ -	
Wireless Switch	0	\$ 2,500.00	4	\$ -	\$ -	\$ -	
Servers	0	\$ 5,000.00	40	\$ -	\$ -	\$ -	
Software	0						
							Subtotal
							\$ 10,400.00
<b>Video Security System</b>							
Fixed Internal Cam	0	\$ 400.00	1	\$ -	\$ -	\$ -	
Fixed External Cam	0	\$ 500.00	2	\$ -	\$ -	\$ -	
PTZ Cam	0	\$ 1,000.00	2	\$ -	\$ -	\$ -	
DVR-16 port	0	\$ 10,000.00	40	\$ -	\$ -	\$ -	
Camera/Power Cabling	0	\$ 200.00	1	\$ -	\$ -	\$ -	
							Subtotal
							\$ -

BELLAIRE HIGH SCHOOL  
PRELIMINARY INSTALLATION ESTIMATE

7/26/2009

Component	Total	Material	Labor in hours	Material Extended	Labor Extended	Total	Subtotal
<b>Access Control System/Intrusion Detection</b>							
PC and Monitor	0	\$ 1,500.00	1	\$ -	\$ -	\$ -	
Software	0	\$ 5,000.00	40	\$ -	\$ -	\$ -	
Card Readers	7	\$ 250.00	1	\$ 1,750.00	\$ 350.00	\$ 2,100.00	
Electric Stikes	7	\$ 250.00	1	\$ 1,750.00	\$ 350.00	\$ 2,100.00	
Door Contact	0	\$ 15.00	1	\$ -	\$ -	\$ -	
Request to Exit	0	\$ 35.00	1	\$ -	\$ -	\$ -	
ID cards	100	\$ 3.00		\$ 300.00	\$ -	\$ 300.00	
ID Card Printer	0	\$ 2,000.00	4	\$ -	\$ -	\$ -	
Cables for Access Control	12	\$ 75.00	0.25	\$ 900.00	\$ 150.00	\$ 1,050.00	Subtotal
							\$ 5,550.00
<b>Hallway Signage-Video</b>							
42" LCD	1	\$ 3,000.00	2	\$ 3,000.00	\$ 100.00	\$ 3,100.00	
LCD mount	1	\$ 250.00	2	\$ 250.00	\$ 100.00	\$ 350.00	
UTP Trans/Rec	1	\$ 400.00	1	\$ 400.00	\$ 50.00	\$ 450.00	Subtotal
							\$ 3,900.00
<b>Computers</b>							
In Classroom	100	\$ 750.00	1	\$ 75,000.00	\$ 5,000.00	\$ 80,000.00	
Server	0	\$ 5,000.00	10	\$ -	\$ -	\$ -	Subtotal
							\$ 80,000.00
						\$ 343,382.57	\$ 343,382.57



3741 Windwood Drive Rockford, Michigan 49341  
www.commtechdesign.com

May 24, 2009

Tobi Tungl  
Analysts International  
3101 Technology Blvd. Suite A  
Lansing, MI 48910

**RE: Peckham Riverside Cabling Systems**

**Bulletin #09**

Please provide pricing to add or delete the work described below to the base contract.

1. Add cables in room 165
  - a. Provide pricing to add the cables as shown on sheets TC601 and TC602.
  - b. Add any associated patch panels required for termination of the additional cables.
2. Add cables at each LCD Display location for connection of the TV control system.
  - a. Add cable and jack. Faceplate at each location is by others.

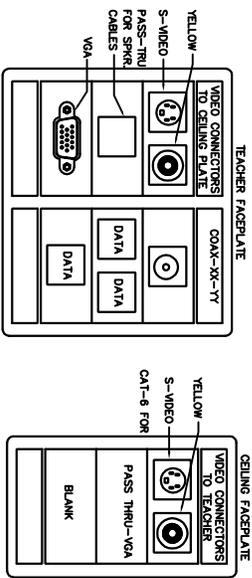
Add or Deduct (Circle One) from the base bid:

\$ \_\_\_\_\_

Sincerely,

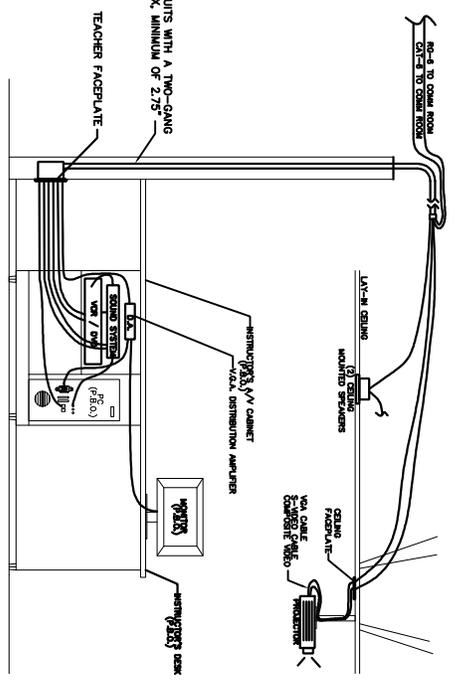
A handwritten signature in blue ink that reads "Bret Emerson".

Bret Emerson, RCDD/NTS  
President

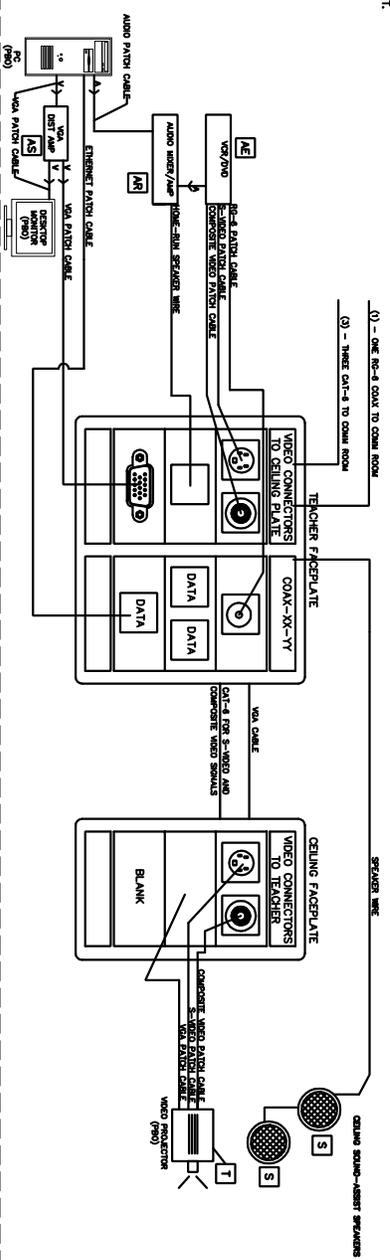


- INSTALLATION NOTES**
1. ROUTE THE CABLES FROM THE CEILING SPACE DOWN THROUGH CONDUITS INTO THE TEACHER DESK.
  2. ROUTE THE CABLES INTO THE BACKBOX INSIDE THE TEACHER DESK. TERMINATE THE CABLES AND INSERT THEM INTO THE FACEPLATES.
  3. INSTALL THE PROJECTOR MOUNT INTO THE CEILING. COORDINATE THE MOUNT LOCATION WITH THE PROJECTOR INSTALLER AND THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
  4. USE AIRCRAFT CABLE TO ATTACH THE PROJECTOR MOUNT TO THE BUILDING STRUCTURE.
  5. THE DROP-PIPE, PROJECTOR PLATE AND PROJECTOR ARE TO BE PROVIDED AND INSTALLED AS PART OF THIS PROJECT.

6. AT SOME LOCATIONS WHERE THE TEACHER FACEPLATE IS LOCATED IN A LARGE ROOM, THE CONDUITS TO THE PROJECTOR WILL ROUTE FROM THE CEILING THROUGH THE WALL AND FLOOR. MAKE ALLOWANCES FOR ALL CABLE LENGTHS.
7. IN CLASSROOMS WITH NO DROP CEILING, INSTALL A BOX TO THE STRUCTURE FOR THE CEILING FACEPLATE.
8. CONTRACTOR SHALL INSTALL ALL PATCH CABLES REQUIRED TO CONNECT ALL DEVICES.



**TYPICAL FOR LAY-IN CEILING CLASSROOMS**



**9B CONNECTIVITY CODE**

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IM200W
1	TWO-HOLE KEYSTONE	HUBBELL	IM200W
1	2-UNIT BLANK	HUBBELL	IM810W
1	S-VIDEO, 110 TYPE	HUBBELL	SVS110
1	RC4, 110 TYPE, YELLOW	HUBBELL	SRCTY10

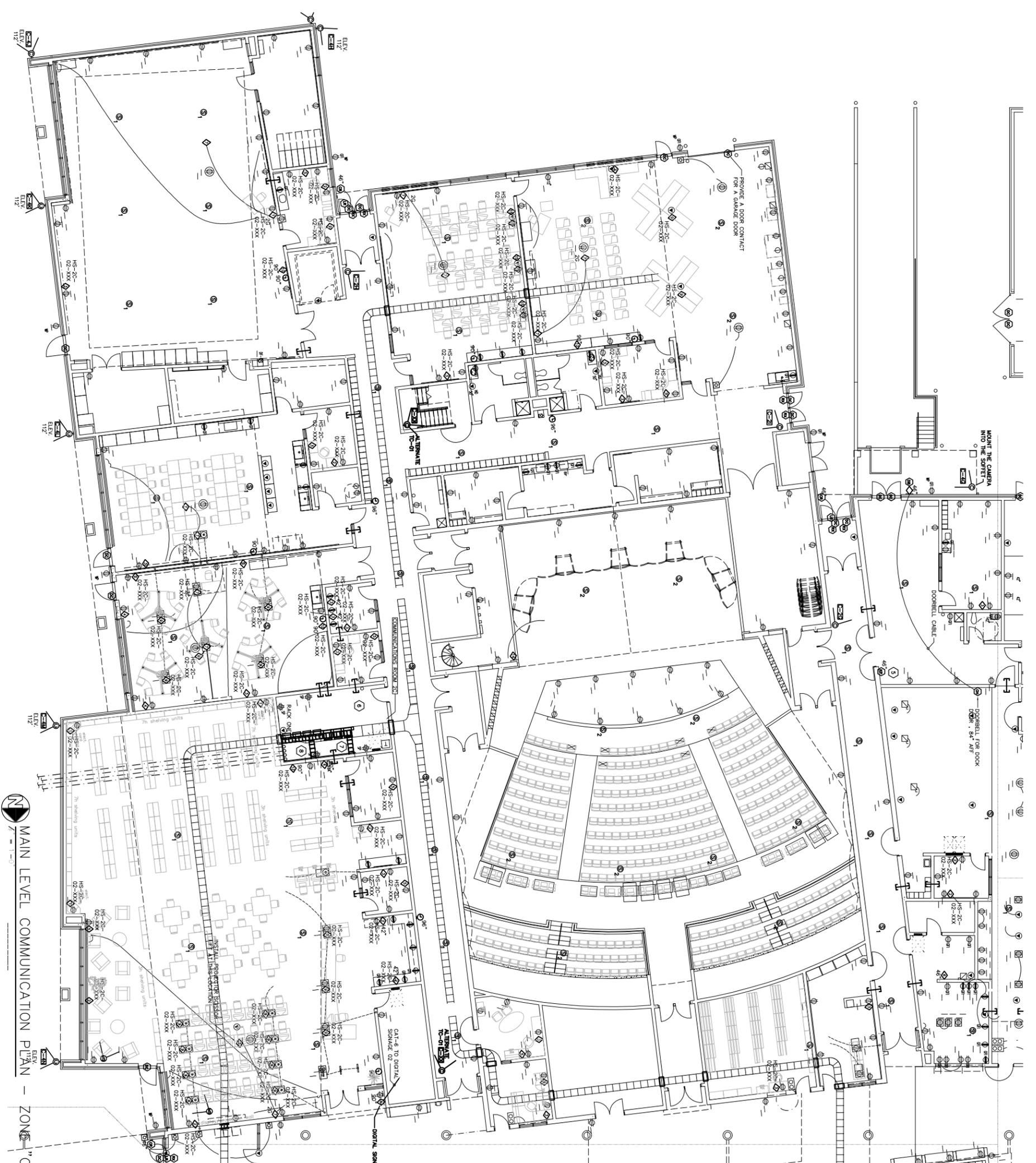
**9A CONNECTIVITY CODE**

QTY	DESCRIPTION	MANUFACTURER	PART #
1	FACEPLATE	HUBBELL	IM200W
2	TWO-HOLE KEYSTONE	HUBBELL	IM200W
1	S-VIDEO 110 TYPE	HUBBELL	SVS110
1	RC4, 110 TYPE, YELLOW	HUBBELL	SRCTY10
3	ONE-HOLE KEYSTONE	HUBBELL	SEE SPECS
1	SPEAKER CABLE	HUBBELL	IM1K0W
1	VGA CONNECTOR	HUBBELL	SEE SPECS
1	F-CONNECTOR PASS-THRU	HUBBELL	15A6P1
1	RC-6 COAX TO COMM RM	HUBBELL	SEE SPECS
1	F-CONNECTOR PASS-THRU	HUBBELL	SEE SPECS
3	CAT-6 CABLE TO BACK	HUBBELL	SEE SPECS
1	S-STRAND MINI-COAX	HUBBELL	SEE SPECS

**PARTS FOR PROJECTOR MOUNT IN DROP CEILING CLASSROOMS**

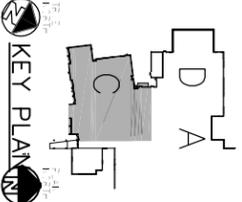
QTY	DESCRIPTION	MANUFACTURER	PART #
1	DROP CEILING MOUNT	CHIEF	CM-500
1	PROJECTOR PLATE AND DOWN-PIPE		





- NOTES**
- 1 AT LOCATIONS WHERE THE USER CABLE IS SHOWN AT THE ELECTRICAL PANEL, THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR TO VERIFY FINAL LOCATION OF THE PANEL PRIOR TO CABLE INSTALLATION.
  - 2 THE DRAWINGS SHOW THE CABLE TRAY AND PASS TRAYS/CONDUITS TO BE INSTALLED BY THE COMMUNICATIONS CONTRACTOR. THE CONTRACTOR SHALL VERIFY ANY OTHER PASS-THRU'S OR CONDUITS THAT ARE REQUIRED TO FINISH THE WORK.
  - 3 ROUTE THE AUDIO SPEAKER AND MICROPHONE CABLES UP TO THE CEILING. THE CONTRACTOR SHALL VERIFY THE ELECTRICAL VERTICAL SUPPORT AND THROUGH THE CEILING AREA.
  - 4 AT LOCATIONS WHERE THE TEACHER DESK IS LOCATED ABOVE THE CEILING, THE CONTRACTOR SHALL VERIFY THE CONDUITS THAT FEED THE TEACHER OUTLET WILL BE ROUTED UP FROM THE CEILING BELOW. ALL CONDUITS SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR IN A CABLE LENGTH.
  - 5 THE HSPAD SHALL ALLOW THE MAINTENANCE PERSONNEL TO REMOVAL OR DISMANTLE THE EXTERIOR DOORS FROM THE BOILER ROOM AND JANITOR ROOM.
  - 6 CONTRACTOR SHALL REVIEW DETAILS TC-05-01 AND TC-05-02 FOR FIBER AND COPPER BACKBONE CABLING REQUIREMENTS. UTILIZE CABLE TRAY PROVIDED.
  - 7 INSTALL CABLE LADDER FROM THE RACKS TO THE WALL IN EACH COMMUNICATIONS ROOM.
  - 8 PROVIDE 3" OF SPACE BETWEEN THE BACK OF THE DATA RACKS AND THE WALL.
  - 9 CONTRACTOR SHALL COMPRISE THE LOCATION OF THE RACKS AND THE WALL. THE CONTRACTOR SHALL VERIFY THE LOCATION AND PROVIDE INSTALLER PRIOR TO INSTALLATION. COORDINATE IN EACH CLASSROOM.
  - 10 MOUNT CABLES INTO A PEGBOARD MOUNT PROVIDED BY THE ELECTRICAL CONTRACTOR.

MAIN LEVEL COMMUNICATION PLAN - ZONE "C"



DRAWING NAME:  
MAIN LEVEL COMM. PLAN

DRAWING:  
TC201

MARCH, 2005 FOR BID

MICHIGAN  
**ANYWHERE  
HIGH SCHOOL**  
COMMUNICATIONS CABLING

**CommTech  
Design**

3741 WINDWOOD DR.  
ROCKFORD, MICHIGAN 49341  
WWW.COMMTECHDESIGN.COM

## SECTION 17440 AUDIO EQUIPMENT

---

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. This section provides information about the in-classroom audio systems.

#### 1.03 COORDINATION

- A. Coordinate the location of all speakers and the projector with the existing equipment in the ceiling. Take into account the lights and the other equipment when locating the speakers. Meet with the owner or their representative on placement of equipment in each room prior to installation.
- B. Coordinate with the installation of the electrical outlet in the ceiling.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

- A. The contractor shall provide equipment as required for a complete audio/video classroom teaching installation.
- B. Any and all baluns, patch cords, interface cords splitters and other equipment shall be provided and installed to provide complete connectivity.
- C. Classroom audio mixer/amplifier.
  - 1. The mixer/amplifier shall have a frequency response (transformer) shall be 70 Hz to 16 kHz  $\pm 2$  dB $\dagger$ , with less than 1% distortion $\dagger$ .
  - 2. Input sensitivity shall be 85mV for auxiliary inputs, and 75Mv for TEL input. Hum and noise shall be 55 dB below rated output for the MIC inputs and 70 dB below rated output for the AUX and TEL inputs.
  - 3. The amplifier shall provide one dedicated low-impedance balanced microphone input, one dedicated Hi-Z auxiliary input, and one dedicated telephone line input, as well as a fourth input that is switch selectable to be either a microphone or auxiliary input.
  - 4. The microphone inputs shall be equipped with filters to protect against RF interference. Independent volume controls for each input as well as TREBLE control ( $\pm 11$  dB @ 10 kHz) and BASS control ( $\pm 11$  dB @ 100 Hz) shall be incorporated.
  - 5. The amplifier shall provide output impedances of 4- (direct), 8-, and 16-ohm speaker systems as well as for 25V and 70V constant voltage systems.
  - 6. The amplifier shall contain a resettable thermostat in the power transformer to protect against heat buildup and short-circuited or overloaded connections.
  - 7. Provision shall be included to mount the amplifier in 19-inch equipment racks, using an optional rack panel kit.
  - 8. Mixer Amplifier shall be Bogen C series or equal. Provide amplifier with overhead required to drive the ceiling speakers.
- D. Speakers shall ceiling mounted and shall cover the entire classroom area.
  - 1. Speakers shall disperse the audio to cover the entire room.
  - 2. Provide the ceiling tile bridge for each speaker to support the speakers from the T-bar of the drop ceiling tile.
    - 1. Round ceiling speakers shall be capable of 70 volt or 8 ohm direct drive distribution.
    - 2. Speaker shall be provided with a removable baffle assembly with a backcan and safety tether.
    - 3. Speaker shall have a 4 inch low frequency transducer and a 1 inch tweeter.
    - 4. Power rating shall be 25 watts with multiple 70 volt taps.
    - 5. Pressure sensitivity of at least 88 dB SPL at 1 meter.
    - 6. Coaxial ceiling loudspeaker shall be Atlas Sound #FAP42T or equal.
- E. Speaker Wire:
  - 1. The Contractor shall size the speaker wire for the distance between the amplifier and the speaker, as well as the impedance of the speaker.
  - 2. Speaker wire resistance shall not exceed 7 percent of the speakers' impedance.
  - 3. Speaker wire shall be no smaller than 18 AWG.

## SECTION 17440 AUDIO EQUIPMENT

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4. Speaker wire shall be high conductivity, copper cable. Cable shall be of single pair, stranded construction. Cable shall be 2 parallel cables, black in color and 1 of the conductors shall be marked for identification at each end.
5. Cable shall be a minimum of 99.95 percent copper.
6. Provide plenum rated wire when the cable will route through a plenum area. Contractor shall be responsible for identifying plenum areas.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Location of the audio components shall be finalized in each classroom prior to installation beginning.

#### 3.02 PREPARATION

- A. The contractor shall meet with the owner to determine the installation schedule for the project. The owner will provide the contractor with dates when work can be completed in each building.
- B. Coordinate with the electrical contractor to ensure that they install the power outlet in the ceiling at the projector mount. This shall be identified in each room prior to installation.

#### 3.03 SITE REVIEW AND PLANNING

- A. All classrooms have drop ceilings where the speakers will be installed.
- B. The contractor shall visit each classroom where the Audio/Video systems are to be installed and shall also note any potential issues in each classroom that might impede the installation of the audio/video components..

#### 3.07 AUDIO ELECTRONICS INSTALLATION

- A. The audio system shall be installed onto the teacher desk.
- B. The system includes cabling, speakers, the mixer/amplifier,
- C. Review the layout of the room and the existing lights and other items in the ceiling. Locate the speakers to provide the best coverage of the room with audio.
- D. Speakers shall be installed into the existing ceiling tiles. Contractor shall cut each ceiling tile and install the speaker with the tile bridge.
- E. Speaker cables shall be connected in series. One cable shall be used to connect the mixer/amplifier to the first speaker and then to the other speakers as per the drawing. Contact the manufacturer with questions about speaker and speaker cable connectivity.
- F. Connect speaker wires and all audio inputs to the mixer/amplifier. Adjust all inputs, outputs and audio controls to provide even sound between each input. Tune the system to provide clear audio without feedback. Speakers shall be placed with the idea of limiting feedback.
- G. When connecting speakers to the amplifiers, ensure the correct polarity throughout the system.
- H. Contractor shall label the volume control for each input. Labels shall be self-adhesive and shall be laser printed. Provide a sample label to the owner for approval prior to installation... All labels shall specify the device that dial controls. Handwritten labels are not allowed.
- J. After connection of the system, the Contractor shall configure all components to ensure the best sound possible.
- K. Contractor shall test each and every input and output of the system. Contractor shall have the Owner present for final testing and system checkout.

#### 3.08 SPEAKER INSTALLATION

- A. Ceiling speakers shall be mounted flush with the ceiling.
  1. Contractor shall work with the Owner to locate all speakers where other equipment will not impede the installation.
  2. Where the manufacturer provides a T-bar support for the speaker, the Contractor shall install the support in drop ceiling installations.
  3. Speaker wire shall not lie on the ceiling. All speaker wire shall route through J-hooks.
  4. The Contractor shall leave a coil of speaker wire in the ceiling to allow lowering of the speaker for maintenance and removal.
  5. The Contractor shall work with the manufacturer to determine the best layout of the

## **SECTION 17440 AUDIO EQUIPMENT**

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- speakers, and shall submit that layout for review prior to installation.
7. After installation the entire system shall be tested, and it shall be demonstrated that each speaker is connected and in good working order.
  8. It shall be further demonstrated that all audio can be easily heard throughout each room where speakers have been installed.

END OF SECTION

<b>Attending</b>			
	Bret Emerson -CommTech -on phone		
	Paul Mahon -TCAPS		
	Stephanie Corona -SBD		
	Bob Sommerville -AAI		
	Trae Forgette -TCAPS		
	Chuck Childs -SBD		
	Larry Matheson -SBD		
	Previously Attended		
	Colleen Tabor -Allen Supply		
	Allen Davidson -TCAPS		
<b>Date</b>	Meeting on 7-20-09		
	Next Meeting: July 27, 10:00 AM. Meet at West Middle School		
	Meetings will be regularly held at 10:00 AM on Mondays		
<b>Meeting</b>	<b>Item</b>	<b>To Be Completed</b>	<b>Responsible Party</b>
<b>09-0610-01</b>	<b>Schedule</b>		
	central HS cabling is done today. Moving to East MS		
	Next week will move to West MS		
	Will go back to schools to install devices after all cabling is installed.		
	Internal Access Control Programming meeting will be July 16		
	August 3rd. Back to West HS for device installation.		
	Staff returns on August 15th.		
	Staff training will be after school begins.		
<b>09-0713-01</b>	<b>Training</b>		
	Stephanie is starting to setup the training and determine the extent of the training for each of the different groups. Users, Secretaries and Paul/AL		
	Include training for the HR personnel		
<b>09-0610-03</b>	<b>RFI Process</b>		
	No Open RFI's		
<b>09-0610-05</b>	<b>Permit</b>		
	The permit has been applied for. Paul asked that SBD have a courtesy inspection by the local Electrical inspector at rough in.		
<b>09-0610-09</b>	<b>Wireless Door Contacts</b>		

Meeting	Item	To Be Completed	Responsible Party
	Paul Mahon is OK with these at some locations. He will review the proposed locations at each building.		
	He wants to walk each building. Stephanie is to provide a highlighted drawing showing the proposed locations prior to installation.		
	Here is the proposed quantity at each building.		
	CHS - 15		
	EMS - 14		
	WHS - 23		
	WMS - 56		
<b>09-0610-16</b>	<b>Submittals</b>		
	Additional Submittals were sent out by Stephanie last Friday.		
<b>09-0610-17</b>	<b>Rack space</b>		
	The security system may require six or so rack units in each communications room.		
	SBD is to review and work with Trae to determine where space is available.		
<b>09-0610-18</b>	<b>Data Network</b>		
	Tom Wyant will be the Cisco guy as soon as SBD gets him on board.		
	Trae will be working on the installation of the POE switches. He is going to move switches around to allow POE switches where required.		
	SBD will be using the TCAPS Cisco Engineer for their work.		
	There will be about 10 new switches and 15 existing switches to re-configure.		
<b>09-0622-01</b>	<b>System Configuration</b>		
	The owner has a plan on how to operate and maintain this camera network.		
	Paul meets with administrators this week to talk about how things will operate and will then transfer that to SBD.		
	The owner is moving forward with the HR integration. SBD shall plan on this implementation.		
	Paul assumes that SBD will be a partner in the implementation of this system.		
	Add a training person to bulletin pricing.		
	Larry will be the point person for SBD on the initial HR meeting.		
<b>09-0630-02</b>	<b>Building Work Stations</b>		
	All monitoring PC's will have multiple video outputs.		
	This is part of the submittal package that Stephanie sent out.		

Meeting	Item	To Be Completed	Responsible Party
<b>09-0706-01</b>	<b>Re-Keying</b>		
	Re-keying of exterior doors shall not be completed until the access control system is installed and running and people have cards to allow access.		
<b>09-0610-11</b>	<b>East Middle School</b>		
	This building is undergoing a main office reconfiguration.		
<b>09-0610-12</b>	<b>West Middle School</b>		
	There is a site development project. Use Franke Rd for entry.		
	Install the fiber that was not installed in the Central HS building into this building to connect the MDF to the Gym Comm Room. An innerduct exists and will not have to be part of the bulletin.		
<b>09-0610-13</b>	<b>Central High School</b>		
	Bret and Chuck walked around the building and moved a few cameras and located all exterior cameras.		
	We do not need to install the fiber cable that is shown for this building into the Music Comm Room. Innerduct was installed and shall be left as installed.		
	Fiber cable shall be installed into		
	Replace the Music Comm Room rack with the cabinet. 110 block can stay on the wall.		
	There was a thought of enclosing the existin rack. Stephanie is to investigate.		
<b>09-0610-14</b>	<b>West High School</b>		
	Bulletin #3. Install a new rack in the new gym comm room.		
	<b>Bulletins</b>		
<b>Bulletin 01</b>	Install fiber cable and innerduct to connect the MDF To the Gym Comm Room.	To be priced	
<b>Bulletin 02</b>	Add a four door panel to serve an elementary school that has more than four existing card readers	To be priced	
<b>Bulletin 03</b>	West HS. Install a new wall rack for termination of camera cables and connection of equipment.	To be priced	
<b>Bulletin 04</b>	Add Human Resources Software to the system.	To be priced	

Meeting	Item	To Be Completed	Responsible Party
	<b>Contact List</b>		
	Bret Emerson -CommTech	616-863-8132	
	Paul Mahon -TCAPS	231 463-8016	
	Trae Forgette -TCAPS		
	Eric Owczarzak -Security by Design (SBD)		
	Neal Anderson -SBD		
	Chuck Childs -SBD		
	Stephanie Corona -SBD		
	Jason Buckman -SBD		
	Larry Matheson -SBD		
	Jason VanBrocklin -Nealis Engineering		
	Bob Sommerville -AAI		
	Allen Davidson -TCAPS		
	<b>Emergency contact</b>		
	<b>Call 911 from any phone in an emergency</b>		
	Contact Paul Mahon with other issues.		



3741 Windwood Drive Rockford, Michigan 49341  
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Contract Change Order:

<b>PROJECT (Name &amp; Address):</b> TCAPS Security Phase 1 1212 Cass Road Traverse City, MI 49685	<b>CHANGE ORDER NUMBER:</b> 2	<b>OWNER:</b>
<b>DATE:</b> 8/12/11	<b>CONTRACTOR:</b>	<b>ENGINEER:</b>
	<b>FIELD:</b>	<b>OTHER:</b> X
<b>TO CONTRACTOR (Name &amp; Address):</b> Windemuller 1714 Northern Star Drive Traverse City, Michigan 49686	<b>ARCHITECT'S PROJECT NUMBER:</b> 1106_01	
	<b>CONTRACT DATE:</b> 7/18/2011	
	<b>CONTRACT FOR:</b> Combined Trades Work	

**THE CONTRACT IS CHANGED AS FOLLOWS:**

(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directive:  
The work includes an upgrade of the video recording servers and software. Remediation of servers and storage devices that have not yet been deemed Substantially Complete

The original Contract Sum was	\$ 1,449,755.46	<b>Change includes:</b> Bulletin #2 Bulletin #3
The net change by previously authorized Change Orders	\$ 1,160.00	
The Contract Sum prior to this Contract Change was	\$ 1,450,915.46	
The Contract Sum will be increased in this Change Order in the amount of	\$ 9,732.00	
The new Contract Sum, including this Change Order, will be	\$ 1,460,647.46	

The contract time will be increased by ZERO (0 ) days.

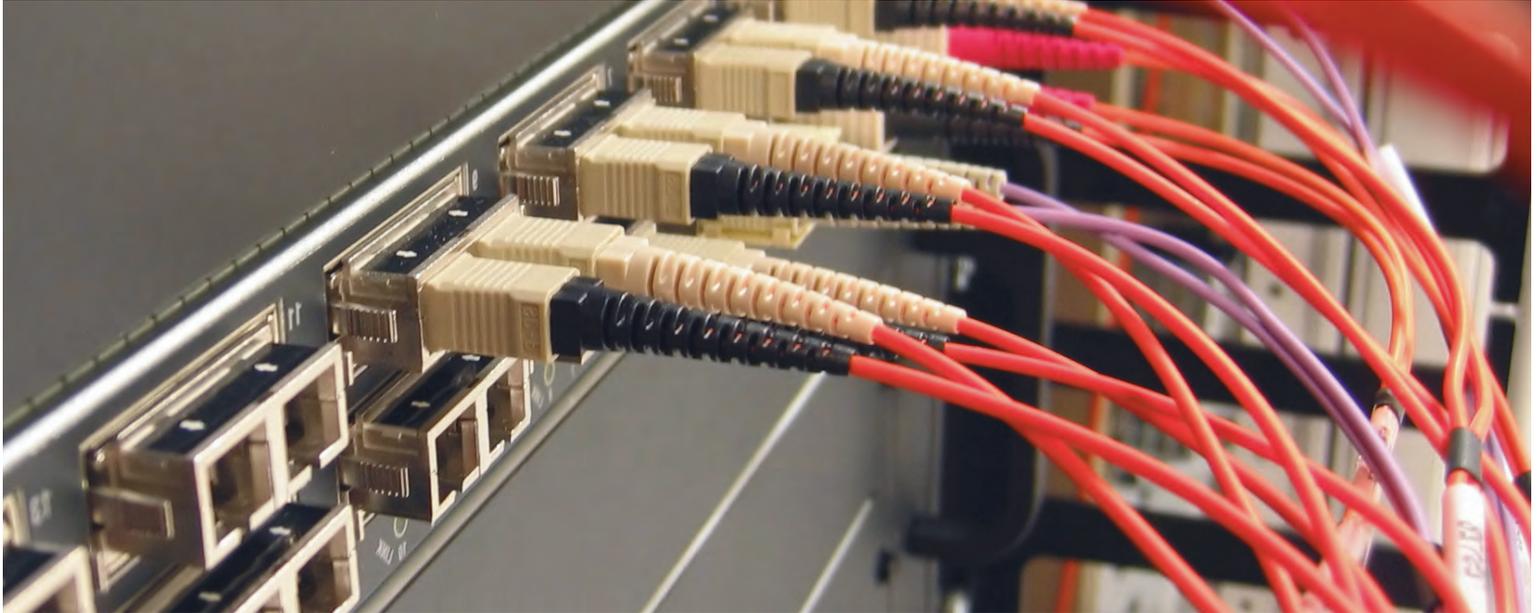
The date of Substantial Completion as of the date of this Change Order therefore is: 9/6/2011

**NOTE:** This Change Order does not include changes in the Contract Sum, Contract Time, or Guaranteed Maximum which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

**NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.**

CommTech Design, Inc. <b>ARCHITECT (Firm Name)</b>	Windemuller <b>CONTRACTOR (Firm Name)</b>	Traverse City Area Public Schools <b>OWNER (Firm Name)</b>
3741 Windwood Dr. Rockford, MI 49341 <b>ADDRESS</b>	1714 Northern Star Drive Traverse City, Michigan 49686 <b>ADDRESS</b>	PO Box 32, Traverse City, MI 49686 <b>ADDRESS</b>
<b>BY (Signature)</b> Bret Emerson (Typed Name)	<b>BY (Signature)</b> Jason Buckman (Typed Name)	<b>BY (Signature)</b> Paul Mahon (Typed Name)
<b>DATE</b>	<b>DATE</b>	<b>DATE</b>

# Delivering Total Technology Design Solutions



## CommTech Design provides solutions for every aspect of your technology plan

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- Investigation and documentation of your existing systems
- Technology master planning and project cost-estimating
- Working with your architect to make technology an integral part of your new or renovated building
- Design of new technology and security systems
- Detailed drawings and specifications for bidding
- Assistance during bidding with questions and help in choosing the right contractor
- Project oversight and management during installation
- Final project punch-lists and sign-off

CommTech Design specializes in designing communications and technology solutions that marry the architectural integrity of a new or renovated building with the functionality desired by the owners and occupants. We work through the process of identifying what you have, where you want to go, and then designing systems that allow you to get there.

CommTech Design provides you with a master plan for the communications and technology elements in your new building. With our detailed specifications and AutoCAD drawings, you can solicit competitive bids without concern that each supplier will interpret the job differently.

## Security Solutions

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- Access control and intrusion detection systems
- Video security and digital video recording

## Networking Solutions

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- CAT-6 cabling and communications rooms
- Fiber optic and copper cable backbones
- Wired and wireless data networks
- Data Center design

## Audio/Visual Solutions

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- Video distribution systems
- Telephone systems



# Center for Advanced Teaching. C.A.T. Lab Montague Middle School, Montague, MI



## Challenges

### Technology Need

The district wanted to set the bar for a technology enriched environment where students could work in small groups but share their work with each other and the teacher

### Curriculum based

No group wants to spend money on technology just because it is the latest available.

Montague wanted an advanced technology solution but they didn't want to install the latest tech gear and now have anyone use it.

A teacher was identified that teaches Geography, who was tech-savvy and who wanted to challenge his students and himself. He was identified as the champion of the room and is teaching in the space full time.

## Solutions

### Audio/Visual

The idea was to identify technologies that could be used in a large classroom but would scale to work with small groups.

A mix of LCD panels, Long-throw video projectors and short-throw interactive projectors was designed to fill every possible need.

Each table is setup for groups of up to six students. Each station has a wireless keyboard and mouse that is connected to rack mount computers.

The student PC's and the teachers Podium is attached to an Audio/Video Switcher that allows each group to see their own PC or all the displays to show one groups display.

### IPAD

The entire switching and audio system is controlled through an IPAD which is also used to generate content and be shown on the display devices.

## Summary

CommTech worked with Montague Schools to plan and specify the layout and equipment in the room.

Through collaboration meetings with the teachers we were able to come up with a classroom where each student is engaged with a small group but also focused on the same lesson plan as their peers.

Easy control of the system and simple equipment makes this classroom one of the most technology enriched environments in the State of Michigan.

Location: Montague, MI  
Size: Three rooms, one in each building.  
Owner: Montague Schools  
Completion Date: 2011



# Michigan State Police Headquarters Security and Monitoring Operations Center Design



## Challenges

### Security

Design a facility that can easily serve the State Police and those that interact with the MSP but provide important security to all.

Design a control center for the Michigan Information Operations Center (MIOC) with a space that was not completely designed as an operations center.

### Audio/Visual

The AV systems serve the MIOC but they also control video images and audio feeds for the Fifth Floor executives.

There are numerous conference rooms throughout the room where officers can gather and take advantage of the built-in AV systems

## Solutions

### Security

Extended the State of Michigan Video Security Solution, Nextiva, to the new MSP building. This included cameras throughout the building and on the exterior.

Exterior cameras are mounted on the corners of the building and around the building to cover the parking lot and area around the building.

### Audio/Visual

The Control Room is extensive and includes the following:

- 32x32 video switcher
- Crestron Touch Screen Control
- Eight, 52" LCD on wall
- HD Split Window Projector
- 16 LCD Screens throughout MIOC
- Connections to upper level floors for executive briefings.

## Summary

The MSP headquarters and the MIOC within is an excellent example of designing technology to allow user to interact and share information.

During any threat or heightened alarm the MIOC has the unique ability to share information with everyone in the MIOC while planning and preparing for a response.

All information is shared with Executive officers and the system provides for collaboration with each officer in the MIOC. This is truly an innovative space, built on a budget.

Location: Lansing, MI  
Size: 70,000 sq. feet  
Owner: State of Michigan



# Van Andel Institute Phase II



## Challenges

### Security

Provide adequate security system operations inherent for a medical facility.

Replace existing, six-year-old system and move to an IP-based system.

### Networking

Design a new data center, move existing hardware to new center.

Expand on existing infrastructure and enhance existing backbone.

### Audio/Visual

Centrally controlled audio/visual system that allows for HD video conferencing through the facility.

Video solution design that serves both the researchers and the administrative staff.

## Solutions

### Security

Designed entirely new converged access control and video security solution.

Upgraded security access to a smart card system.

Transferred all existing cameras to a new IP-based recording system.

### Networking

Relocate existing data center to a new location within the facility, without any resulting downtime.

One of the first CAT-6A installations in state of Michigan for a new structure.

### Audio/Visual

Recommended a combination of large LCD panels and HD video projection.

Installation of one centralized video wall for viewing large format video and images.

## Summary

Designed an innovative cabling infrastructure, a fully enmeshed audio/visual system for conference rooms, and created a new IP-based video security and access control system that integrated and improved upon existing Phase I infrastructure.

Location: Grand Rapids, MI

Size: 400,000 sf

Owner: Van Andel Institute

Completion Date: 2009

Architect: Rafael Vinoly Anderson and Associates





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### What you should expect when working with a Technology Consultant

As part of the technology portion of your bond, you are embarking on a multi-year project that will affect your work, your systems and each staff member and student in the district.

You want to choose a technology consulting company that has the knowledge and ability to assist you in the design and implementation of the projects. That company should be able to show a great relationship with other schools, architects, contractors and vendors of technology systems.

The company you choose should also be fun to work with!

The following is a listing of what you should expect when working with a great Technology Consultant:

- Someone whose only goal is to assist you in realizing the districts technology goals. They shouldn't have a solution or idea about how you should do things or how your systems should be designed. *Collaboration is key!*
- They can present a complete project budget that allows you to make financial and technology decisions
- A company that can bring you ideas and can talk about how others are using technology. Someone that can suggest systems and vendors to review to determine how those systems will meet the districts technology goals.
- Is able to present drawings and specifications that detail the systems you want installed
- The company should have good relationships with all the members of your team. This includes Contractors. When the Technology Consultant can work with the entire team you know that they will be able to create consensus and provide a complete design.
- Will keep track of your systems and your requirements. Generate meeting minutes and be able to work the project from beginning design to closeout.

Work with someone competent, knowledgeable and fun! Work with:



Mr. Bret Emerson  
Commtech Design  
Page 2  
January 17, 2014

If your company is interested in participating in the MiDEAL program, please sign below and return to this letter to the letterhead address, Attention: Melissa Sambiagio

**FOR THE STATE OF MICHIGAN**



Robert C. Hall, RA, NCARB, Director  
Design and Construction Division  
Facilities Administration

**FOR THE PROFESSIONAL**

Commtech Design agrees to extend the terms, conditions, and pricing of our 2013 General ISID Architectural/Engineering Services contract, No. 00427, to MiDEAL members and will remit the one percent (.01) administrative payment fee along with the quarterly report as outlined.



\_\_\_\_\_  
Signature

2-3-2014  
Date

Bret Emerson President

Print Name/Title