Basic Design

- **IT/RADIO HUB ROOM**
  - Electronic nerve center of 911 center.
  - Joint I-T/Radio.
  - Input/Output of entire center.
  - Each year radio input/output becomes more like I-T. Resist, though, I-T controlling your radio system.
  - Large Room
  - Computer Flooring
  - Large UPS for this room and 911 Center.
  - Access to hub radio tower

- **GALLEY**
  - Rest and cooking amenities so the dispatcher does not have to leave work area.
  - Sink
  - Microwave
  - Kitchen Table
  - Lockers.
  - Pizza Oven.
  - Apartment Size Fridge.
  - Unisex Bathroom.
  - Recliner chair.
  - Joint room with EOC but sliding door.

Basic Design

- **EOC**
  - Sliding door to 911 center for sound control.
  - Two separate enclosed radio rooms. Public Safety and Ham Radio.
  - Partial computer floor under radio area.
  - Combination EOC, meeting room, training.
  - Shares galley in an emergency.
  - Console position off main 911 console switch. Primary-training Secondary-EOC.
  - Access to hub radio tower
  - Access to roof for antennas.

- **HUB RADIO TOWER**
  - Small for system back up.
  - Communications launch from here to other radio towers.
  - Space for EOC antennas.
  - Rooftop for small ham radio antennas.
  - Rooftop for satellite dishes.
1998 OSHA & ADA CONSOLE DESIGNS

• 1990 ADA ACT
  – Governs access
  – Reach Distances
  – Reach Angles

• 1998 OSHA STUDIES:
  – Minimizes Work Place Injuries

• From these two came the boomerang shaped console

WORK STATIONS

• DESKS:
  – Must meet 1990 ADA law and 1999 OSHA study.
  – Allow operator to sit/stand.
  – Reach distances and angles governed by ADA.
  – Viewing angles governed by ADA and OSHA.
  – Operator environmental controls.
    – Self contained additional heat and ventilation controls.
    – Allows operator to adjust room air around positions to individual desires.
    – Stops thermostat fights.

  – Hidden Wiring
  – Serviceability—without taking position out of service.

  – Front & rear access of PC computers.

  – OSHA gets involved in your center when a worker files a worker’s compensation claim!
    – Sore neck- monitors too high.
    – In adequate lighting.
    – Lightning injuries.

CHARACTERISTICS OF NEW CENTERS

• New 911 centers are becoming more and more information centers.
  – More computers
  – More large wall monitors
  – Comfortable and pleasant environment.
  – No more windowless bunkers.
CHARACTERISTICS OF NEW CENTERS

- Technology driven
- Self contained HVAC system.
- Grounding and lighting protection to latest industry standards—not just to code.
- For stress reduction—bright accent colors, prints, windows, and lighting control options.

OSHA-MONITORS

- The lower monitors are focus monitors
- The upper monitors are glance.
- Proper monitor assignment assures no neck injuries and OSHA compliance.

WORK STATIONS OSHA ISSUES

- Monitors Too High
  - FOCUS MONITORS:
    - Operator must focus on these monitors as part of job.
    - Center of eyes = Center or top of monitor.
    - CAD; 911, MAPPING.
  - GLANCE MONITORS:
    - Operator does not need to focus attention on monitor.
    - Any height.
    - CCTV, RADIO, ALARMS

- Lighting:
  - Operator must have 50 Lumens of light on demand at work area.
  - Source is uniform building code for office environment.
  - Does not mean lights on all the time...only on demand.

- Lightning:
  - Center ground and surge protected to Motorola R-56 or other industry standard.
  - All metallic conductors passing in and out of center must have surge protection.
  - Watch your I-T department here!

MORE MONITORS

- Monitors:
  - All must be flat panel LCD. NO MORE TUBE CRT’S:
    - Much less radiation to operator.
      - 2x screen size of CRT is a safe viewing zone.
    - 1/3 the heat radiation.
    - 1/3 the energy drain.
    - Virtually no x-rays on operator’s face.
  - Standardize on black bezel faces on flat panel monitors.
  - Standardize on monitor size on desk.
  - Nothing looks worse than monitors of a menagerie of different size and colors.

- Require all monitors have the standard 4 post mounting on back meeting the VESA standard.
- Maximum mounting options.
WORK STATIONS

- Room for PC computers in pedestal spaced enough for adequate ventilation.
  - Allow space for 25% more PC's than your immediate needs.
  - Remember—don't just count monitors! Some computers now have dual and quad video cards.

NON MONITOR DEVICES

- YOU HAVE TO HAVE SPACE ALLOCATED FOR ITEMS THAT CANNOT BE PROGRAMMED ON A COMPUTER MONITOR
- DESK TOP EIA RESOURCE UNIT
  - Top: Operator Status Light (Pat Lite).
    - Absolute necessity if headsets are used.
  - Red-Operator is Transmitting
  - Orange-Critical Situation/Duress
  - Blue-Operator on phone
  - Resource Top: Back up radio and paging encoder. In case main console switch fails.
  - Resource Middle: Burglar Alarms
  - Resource Bottom: Emergency Alerting Decoder
  - Side: Call out phone on non emergency line. Never have to put calling party on hold.

COMPUTER FLOORING

- Computer flooring allows you to:
  - Hide wiring.
  - Easily reconfigure your center
  - Access to I-T/Radio Equipment Room
  - Access to EOC radio Room.
  - Plan for moveable electric outlets under floor for maximum flexibility.

DISPATCH CENTER LIGHTING

- THREE TYPES OF LIGHTING:
  - Florescent for tours and maintenance. Usually off.
  - Overhead track lighting: small low wattage bulbs
    - Wirelessly controlled from position.
  - Work Station Spot Lights: adjustable to work area.
    - With this system each operator can receive 50 Lumens of light on demand. BUT ONLY ON DEMAND.
WALLS

- LEAVE OPEN WALL SPACE FOR COMMUNICATIONS SUPPORT DEVICES.
  - White and tack boards
  - Counters for support equipment.
  - Docking stations for personal rolling files.
  - Large TV Monitors for internet news, CCTV monitors, and web cams.
  - Legal time wall clock.

  - Source: NBS GPS Time. Internet time does not meet NENA standards.

SELECTING AN ARCHITECTURAL TEAM

- Select an Architectural team who is:
  - Proven in 911 Center Design.
  - Cooling: Will cool for 2-4 months per year more than nearby offices.
  - Totally Separate HVAC units.
  - Isolation from Court House/Jail HVAC due to possibility of gas deployment or prisoner fires.
  - Higher electrical demands.
  - Security: Windows with protection more from wind blown debris.
  - Specific OSHA/ADA issues.
  - Large low voltage wiring issues.
  - Safety: Far more than National Electric Code Grounding. Motorola R56 or equal.

  - Galley
  - Bathroom
  - Break/Rest Area

- Be involved in planning.
- Build one more position than you staff today.
- Plan for space for one additional position for the future.
- Worse pitfall is from junior architects and engineers not knowing unique 911 center needs.
- Worse pitfall is from Security and I-T contractors whose needs were never defined or pre-coordinated with owner.

INSIST ON HIGH QUALITY OF WORK

- Quality of installation directly translates to reliability and timeliness of repair.
  - Don’t let your contractor or I-T personnel trash your center.
  - Insist on neatness and documentation.
  - The worse thing to hit your 911 center may not be a tornado but your I-T personnel.
  - Do not practice “shop du jour”. One contractor responsible for all radio connections to 911 center out to the radio tower. Find best contractor and stay loyal to them. They will be loyal to you.

DISPATCH CENTER LIFE CYCLES

- Much to County Supervisors budgeting chagrin:
  - Dispatch Centers do not last as long today.
  - Follows Moore’s Law
  - Computer performance doubles every two years.
  - Moore’s Law causes a product to lose serviceability even though it appears to still have useful life.
  - Software revisions move beyond capabilities of computers. Manufacturer slows or stops support.

  - LIFE CYCLES:
    - 100,000 hours of continuous use or about 12 years.
    - Year 4: Replace computers and monitors.
    - Year 8: Replace computers and monitors
    - Year 12: Completely replace console electronics, telephone, furniture, computers, and monitors.
    - Year 15: Replace critical base and repeater stations. Critical lives depend on function.
QUESTIONS

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