OAKWOOD ADVENTIST ACADEMY

New Building Technology Plan

A comprehensive interactive Learning Strategy starts with the physical environment where learning occurs. Smart building Technologies must be employed in order to create the necessary environment to power the vision of forward thinking educators

OAA Technology Panning Group

Table of Contents

Introduction

The widespread adoption of emerging technologies in virtually every aspect of K-12 education presents substantial challenges for effective implementation. One significant factor is that school buildings were not typically designed for the paradigms required to facilitate these advancements. For this reason, any new construction must be explicitly designed to support the requirements commensurate with emerging technologies particularly in following areas:

- Gigabit internet bandwidth capacities
- Inter-nodal fiber connectivity (Fiber to the classroom)
- Interactive and remote classroom Instruction (Distance Learning)
- Responsive, intelligent, and integrated security systems
- Multi-point, entry-points (BYOD) per classroom via high density wireless networks
- Emerging technologies in classroom management and instruction

These capabilities are necessary to ensure parity for all students and any compromise can have adverse consequences.

Overview

The OAA new academy building will be a state of the art facility specifically designed to provide the infrastructure necessary to support the capabilities listed above. It will be unparalleled in its scope and more than capable of meeting the demands of 21st century classroom technologies. It is our intent that, its technological signature would be sufficient to attract high-caliber, highly motivated personnel: Students, instructors, and administrators alike.

History

Oakwood Adventist Academy (OAA) was originally founded in 1896 as Oakwood Industrial School in Huntsville, Alabama, USA. Their primary purpose: To prepare students mentally, physically, and spiritually for a lifetime of service

The school functions under the auspices of the 7 Huntsville Area Seventh-day Adventist (HASDA) churches from whom the school board is derived. They in turn, implement policies prescribed by the South-Central Conference of Seventh-Day Adventists, Nashville, TN who is the employer for all full-time personnel.

In September 30, 2017, ground was broken for the construction of the new 28,000 square foot building, scheduled to be completed by March,2019.

Statistics

OAA has had a long-standing tradition of developing technically motivated students who consistently perform with distinction in State and National Scientific venues.

On April 6, 2018 seven students participated in the Annual Science and Engineering State Fair, all of whom received awards. These included 1st place in Botany, 1st place in Bio Medical and Health, 3rd place in chemistry, 3rd place in Engineering. They also won cash prizes and several prestigious awards including:

- The Boeing Company Scientific award,
- The U.S. Army Engineering and Scientific Award
- The Marine Environment Sciences Consortium Award
- The Alpha Kappa Alpha Science Award
- Boeing Engineers Award
- International Society for Optics and Photonics Award
- Boring Grand Award (Reaching for the Stars)
- The NASA Best Show Award
- Huntsville Botanical Gardens Award
- The Broadcom Masters Award

Based on the overall number of awards issued, Oakwood Academy (with by far the smallest enrollment of all competing schools) placed second in a crowded field.

This commitment to excellence would be enhanced exponentially with facilities outfitted commensurate with the vision as outlined. Scholastic achievements and performance will be exponentially increased not only in academics but in similar venues as described above. It is clearly understood that individual initiative and effort provide the impetus for achieving success on every level. However, having an unfettered access to the effective resources required can propel the individual to reach their full potential.

Executive Summary

The integration of technology into the infrastructure of the new Oakwood Adventist Academy (OAA) building will establish a framework for smart systems. This will require:

- A telecommunication based paradigm on which to leverage interactive learning.
- A robust network/internet-working infrastructure to facilitate cloud-based systems management and centralized security.
- A host of sub-systems designed to seamlessly infuse technology into the learning environment.
- The development of tools and strategies that are measurable

Leadership and Vision

The governing board of the Oakwood Adventist Academy (OAA) has long standing policy-based objectives which require students, at a minimum to:

- Develop and maintain strong computer literacy and competency skills.
- Employ and create critical thinking skills in problem solving.
- Converse comfortably with diverse cultures.
- Cultivate consistent methodologies for finding and navigating information.
- Promote and complete mastery of technical skills.

Teachers and instructors are required to:

- Acquire the continued use of technology to prepare students to fulfil the demand of future tools.
- Create learning-centered, technology-enriched environments.
- Employ and pursue methods for emerging technologies in instruction.
- Facilitate empowered learning.
- Develop and analyze tools which support meeting curriculum goals.
- Communicate effectively with and within diverse cultures.

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Vision Statement

This we believe:

We believe in the value of a strong community and the impact a Christian education has on instilling, defining and maintaining its values.

We believe education should effectively equip our children to function in the large community while maintaining a spiritual focus on their life.

We believe that we have teachers who inspire our children to become great citizens; we do not know what they will become, but we remain poised to give them whatever they

need to accomplish the greatness that is their destiny. To that end, we make sacrifices of our time and means.

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Mission Statement

The Oakwood Adventist Academy Technology Committee (OAATC) and its constituents believe that all students should acquire skills needed to work, live and function in a society which relies on technology, and in particular, information technology. We will foster a technological infrastructure which supports learners in developing their maximum intellectual potential, and personal skills in preparation for their future as productive adults in an ever-changing society.

Strategic Plan

OAATC believes we must plan with our imagination not our memory. With that in mind, The Strategic Plan is based on three principles:

- Developing a Vision for the Future
- Planning Backwards
- Building change into the model

The goal is to establish a system that concentrates on emerging technology to empower teachers, and give our students the technological framework to make them excel in current and future markets. The resources for creating this framework may be constrained by cultural and/or budgetary realities; however, employing a visionary approach will provide an optimal solution.

Our goals will be partially accomplished by aggressively pursuing funds from the Universal Service Administrative Company (USAC). USAC is an independent, non-profit, corporation created in 1997 to assist schools and communities to gain access to affordable telecommunication services. This program also known as "E-Rate Funding will provide funding for the following categories of service:

- Telecommunication Services
- Internet Access
- Internal Networking and Basic Maintenance

Funding ranges from 20% to 90% of eligible services.

Technology Planning

Electrical Grid Infrastructure

1. internal telecommunications network to support video conferencing in each classroom to implement interactive on-site and online instruction, and inter-nodal connectivity
2. Laptop, tablet, and mobile device integration per classroom
3. Cloud based access control with integrated video surveillance
4. Centralized environment control
5. Network self-learning and self-optimization with robust wireless network infrastructure
6. Direct External fiber to the building and interconnected fiber to adjoining building
7. Floor conduits for network wiring to each room
8. Floor located power outlets in each class room
9. Emergency power
10. Raised Floor

Facility Requirements:

- Independent 20amp circuits for each classroom to accommodate 50 connections
- 8-10 socket in-floor power rails running to the left of each row of desks to power individual devices
- Power provisioning for 2 Stanley Dura-glide Greenstar automatic doors (Main entrance and vestibule)
- Conduits for inter-nodal telecommunications network fiber
- Digital Signage – in-floor power/network connections in vestibule
- Rough-in for overhead monitors East & West Entries, Collaboration rooms, Staff Lounge
- Rough-in for laser projector/video wall in Multi-purpose room, Sharp Aquos Boards in classrooms
- Backup generator power transfer
- Server room dedicated cooling
- 8 – 12 electrical connections above drop-ceiling-tiles in each VTC enabled room
- 9 network drops per classroom as follows:
  - 2 above the ceiling at the head of the classroom for IP Camera & Access Point
  - 1 mid wall at head of classroom for Aquos Board
  - 1 mid wall above Aquos Board for VTC Camera 1
  - 1 mid wall at back of the room for VTC Camera 2
  - 1 mid floor at head of classroom for Computer
  - 1 mid floor at head of classroom for UCaaS Device
  - 1 above Ceiling at Door for Card Reader
  - 1 outer wall mid-way to the right of Door for Visix MeetingPad

Technology Objectives

1. Provide optical fiber connectivity to designated classrooms
2. Provide full Video Teleconferencing capability to designated classrooms
3. Provide 3 Gigabit Internet connectivity via a dedicated line to facility
4. Data Center flooring for enhanced cable management throughout the facility

5. Provide robust and highly responsive networking environment
6. Implement a user-centric integrated digital signage system
7. Provide tightly integrated and centrally managed security platform
8. Provide cloud based access control via keyless entry integrated with video surveillance
9. Tier II uptime commitment with concurrently maintainable site infrastructure

IT Infrastructure

1. 3gb dedicated Single-Mode Fiber Connectivity directly from Adventist Blvd to Server Room(127D)
2. Multi-mode fiber via underground conduit to Adjoining Building from Server Room (127D)
3. Multi-node fiber from Server Room (127D) to:
   a. 121, 122, 123, 125, 129, 131,133 – Classrooms
   b. 103,107 - Offices
   c. 130,132 Labs
   d. 120 Multi-purpose Room
   e. 128 Collaboration Room
4. 3. S5800-8TF12S 12 Port 10gb fiber to Ethernet media converters
5. Firewall
   a. 2 Netgate XG-1541 1U pfSense Security Gateway Appliances
   b. 1 Netgate Enterprise Plus Software Support

Networking

1. Network Switches
   a. 4 Adtran NetVanta 1544F Layer 3 Gigabit Switches (28 port)
   b. 6 Adtran NetVanta 1544P Layer 3 POE Gigabit Switch (28 Port)s
      i. 35 Access Control Readers
      ii. 26 Video Surveillance Cameras
      iii. 15 Wireless Networking Access Points
2. Dell R7425 VM Hosts (128gb, 12TB)
   1 Windows Server 2016 Enterprise AD Primary Domain Controller /DNS
   1, Windows Server 2016 Enterprise AD Secondary Domain controller / DNS
   1 Windows Server 2016 Administrative
   1 Windows Exchange Server 2016
   2 Windows Application Servers 2016
   1. Linux Centos 7.3 Server – VPN server
   VMWare ESXI 7.0 enterprise license
   VEAM Server backup Enterprise License
3. Administrative Systems
   a. 10 Desktop Systems (105, 110, 111, 109, 112, 108,106,105,102A,102)
      i. i-7 8gb, 1TB Hard Drive
      ii. 23" HDMI Monitors
      iii. Cordless Keyboard & mouse
      iv. Dell E514dw Laser printer
4. Classroom Management and Instruction
   a. 7 Sharp Aquos Boards (Mounted) (121,123,125,122,129,131,133)
      i. 7 Sparrow Portable PCs
   b. 2 Sharp Aquos 70" Boards Mobile Units
      i. 2 Sparrow portable PCs
5. Software
   a. Nagios IT Infrastructure Monitoring System

Network topology

Sharp Network Management Services

Telecommunications

1. 13 Computer VTC Workstations (120,122,121,123,125,103,107,128,129,131,133,130,132)
2. 10 48" Samsung Television Monitors
3. 3 60' Samsung Television Monitors
    a. Intel 7 Processors
    b. 16gb RAM
    c. 1 TB Disk
    d. 512gn Solid State Drive
    e. 23" HDMI Monitor
    f. Cordless Keyboard & Mouse
    g. Dell E514dw Laser Printer
4. Microphone Arrays
    a. 2 Dual Ceiling Mics
    b. 1 handheld cordless Mic
    c. 1 lavalier mic
5. 8 ceiling Speakers
6. 13 Zoom Room licenses (3yr)

Telephone (VOIP)

1. 26 UCaas devices

Inter-nodal Fiber connectivity

1. 13 Thor Fiber F-GET-TR (MM) Media converters
2.

Software

1. Renweb Student Information System
2. Microsoft Classroom
3. Google Classroom
4. Moodle
5. Microsoft Office 365

Hardware

1. 2 DellEMC NetShelter SX 600x1200 Deep enclosure Racks
2. 4 Power 9 outlet Distribution Units
3. 2 Neat Patch Cable Systems
4. 2 Leviton 69270-U48 Cat 6 Patch Panels

Access Control

1. 4 ISONAS RC-04-MCT-WK Card Readers/ Keypads
2. 21 ISONAS RC-04-MCT-W Card Readers
3. 13 ISONAS RC-04-MCT-M Card Readers (Mullion)
4. 37 ISONAS CABLE10 Pigtails
5. 35 GRI-180-12-W Door Contacts

6. 35 HES-5200C-630 Electric Strikes
7. 3 ISONAS ACC-WPK-RC04 Weather Proofing Kits
8. I1 ISONAS 5-year Pure Access Cloud License
9. 2 SDC S600 Spectra Rim Exit Bars
10. 2 Trine 4850POE LCD Electric Strikes
11. 2 Stanley Dura-Glide Greenstar 3000 Bi-part automatic doors
12. 4 Stanley SU-100 Motion Sensors
13. 2 Stanley Microprocessor Control Boxes (J)
14. Installation
15. Integration

Video Surveillance (interior)

1. 19 Avigilon H4 HD Indoor Dome Cameras
2. 1 Avigilon H4 Fisheye Camera
3. 4 Avigilon H4 ES Bullet Cameras
4. 1 Avigilon HD NVR 18TB
5. Installation
6. Integration
7. Maintenance

Video Surveillance (Exterior)

1. 1 Avigilon HD NVR 18TB 8
2. 6 Avigilon H4 PTZ Dome Cameras
3. Installation
4. Integration
5. Maintenance

Wireless Networks (interior)

1. 13 Adtran Bluesocket 3040 AP
2. Installation
3. Integration

Wireless Networks (Exterior)

1. 1. Ubiquiti 12port POE Switch
2. 1 Ubiquiti Cloud Key
3. 1 Ubiquiti Edge router
4. 8 Unifi AC Mesh Pro (UAP-AC-M-PRO)
5. Installation
6. Integration

Digital signage

1. 1 Kiosk Information Systems 'Broadcast' Kiosk Model
2. 1 70" Interactive Display (Vestibule)

3. 14 Visix Meeting minder Room Sign Meeting Schedulers
4. 8 60" Samsung Television Monitors

Backup systems

1. Synology Cloud Station Backup Account 30TB
2. Synology 30TB DiskStation DS1517+ 5 Bay
   a. 10GBE Network Adapter Card
   b. M2D17 Dual M2. SATA SSD Slot
   c. Dual Channel Memory
   d. NFS Plugin for VMWARE
   e. Snapshot Manager for VMWARE
   f. VMWARE Storage Replication Adapter
3. Eaton 9390IT UPS 40-80kva w IT Distribution
   a. Extended Runtime Battery Cabinet
4. Kohler KG 40,50 Natural Gas Generator

Maintenance and Support

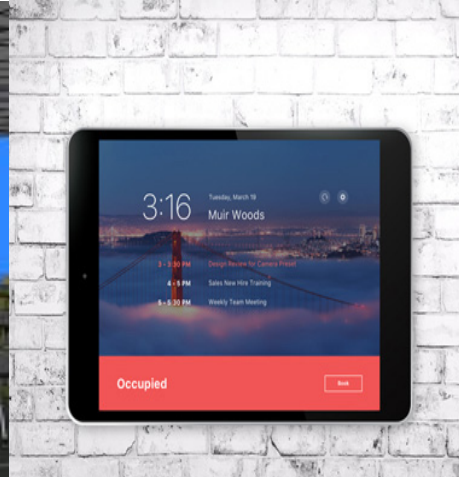1. Microsoft Auto Pilot

Licensing

Equipment Requirements

Classroom 1 [121]

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.

Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control

Charging pad for microphone batteries

8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

        a. Intel 7 Processors
        b. 16gb RAM
        c. 1 TB Disk
        d. 512gn Solid State Drive
        e. 23" HDMI Monitor
        f. Cordless Keyboard & Mouse

7. Windows 10 Professional
        a. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
        b. Dell E514dw Laser Printer
        c. Microsoft Office 365
        d. Zoom Room Software

Basic Classroom Configuration

Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.
Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control
Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

a. Intel 7 Processors
b. 16gb RAM
c. 1 TB Disk
d. 512gn Solid State Drive
e. 23" HDMI Monitor
f. Cordless Keyboard & Mouse
g. Windows 10 Professional
h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
i. Dell E514dw Laser Printer
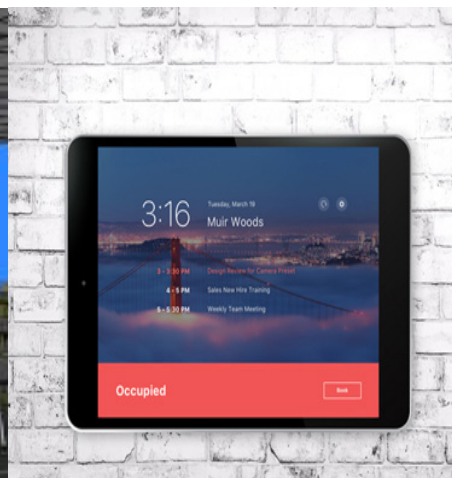j. Microsoft Office 365
k. Zoom room software

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.

Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control

Charging pad for microphone batteries

8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

a. Intel 7 Processors
b. 16gb RAM
c. 1 TB Disk
d. 512gn Solid State Drive
e. 23" HDMI Monitor
f. Cordless Keyboard & Mouse
g. Windows 10 Professional
h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
i. Dell E514dw Laser Printer
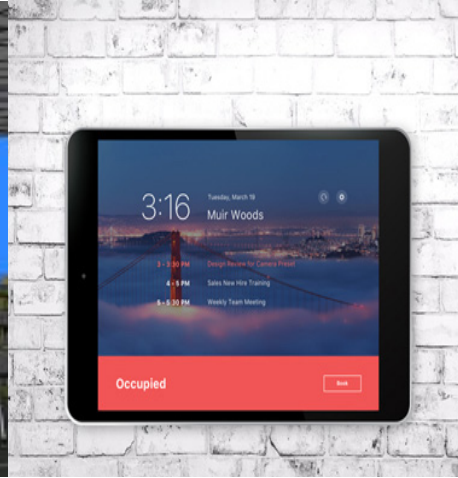j. Microsoft Office 365
k. Zoom room software

Classroom 4 [122]

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.

Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control

Charging pad for microphone batteries

8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

    a. Intel 7 Processors
    b. 16gb RAM
    c. 1 TB Disk
    d. 512gn Solid State Drive
    e. 23" HDMI Monitor
    f. Cordless Keyboard & Mouse
    g. Windows 10 Professional
    h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
    i. Dell E514dw Laser Printer
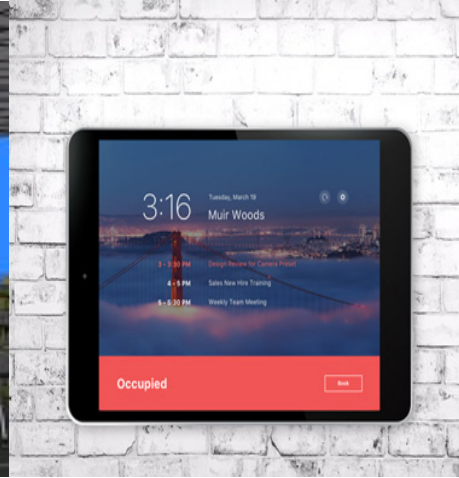   j. Microsoft Office 365
    k. Zoom room software

Classroom 5 [129]

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.
Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control
Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

      a. Intel 7 Processors
      b. 16gb RAM
      c. 1 TB Disk
      d. 512gn Solid State Drive
      e. 23" HDMI Monitor
      f. Cordless Keyboard & Mouse
      g. Windows 10 Professional
      h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
      i. Dell E514dw Laser Printer
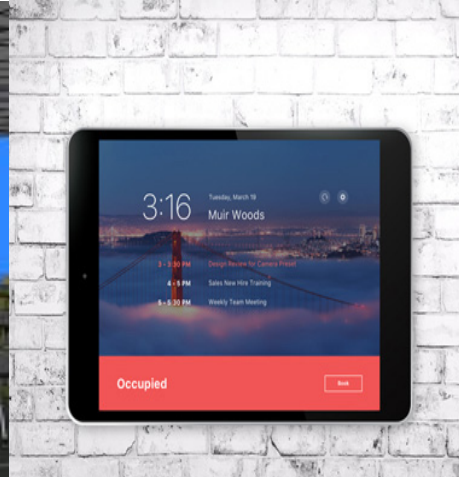   j. Microsoft Office 365
      k. Zoom Room Software

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.
Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control
Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

a. Intel 7 Processors
b. 16gb RAM
c. 1 TB Disk
d. 512gn Solid State Drive
e. 23" HDMI Monitor
f. Cordless Keyboard & Mouse
g. Windows 10 Professional
h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
i. Dell E514dw Laser Printer
j. Microsoft Office 365
k. Zoom Room Software

Classroom 7 [133]

Basic Classroom Configuration   Visix Room Scheduler

Classroom Management

- Sharp Aquos 80' Board with Sparrow Mini PC
- 2 ClearOne Unite 150 PTZ Cameras

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Security

1 HIKvision IP Dome Camera

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual confidence monitors will be mounted in ceiling and will face the instructor's location.

Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control

Charging pad for microphone batteries

8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

    a. Intel 7 Processors
    b. 16gb RAM
    c. 1 TB Disk
    d. 512gn Solid State Drive
    e. 23" HDMI Monitor
    f. Cordless Keyboard & Mouse
    g. Windows 10 Professional
    h. PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
    i. Dell E514dw Laser Printer
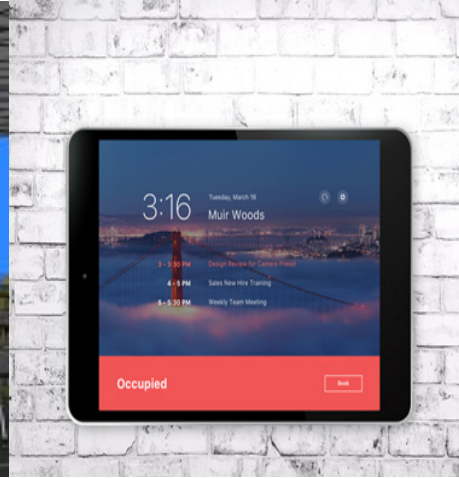   j. Microsoft Office 365
    k. Zoom Room Software

Biology Lab [130]

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Networking

Ethernet connection on each wall:

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Prep Room [130A]

<u>Access Control</u>

- 1 Isonas RC-04-MCT-M Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Chemistry Lab [132]

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point
-

Prep Room [132A]

Access Control

- 1 Isonas RC-04-MCT-M Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Collaboration Lounge [128]

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Collaboration Lounge [128A]

Access Control

- 1 Isonas RC-04-MCT-W Card Reader
- 1 HES-5200C-630 Electric Strike
- 1 Isonas 10' Pigtail
- 1 GRI Door Contact W-190-H

Networki and Telecommunication

Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to:

Master control Workstation

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 512gn Solid State Drive
- o 23" HDMI Monitor
- o Cordless Keyboard & Mouse

- o Windows 10 Professional
- o PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
- o Dell E514dw Laser Printer
- o Microsoft Office 365
- o Zoom Room Software

Multi-Purpose Room [120]

Access Control

- 2 Isonas RC-04-MCT-W Card Readers
- 2 HES-5200C-630 Electric Strikes
- 2 Isonas 10' Pigtails
- 2 GRI Door Contacts (W-190-H)

Security

1. Avigilon Dome Camera

Other

- 1 Visix MeetingMinder Room Sign
- 1. Adtran UCaaS Communication Device
- 1 Adtran Bluesocket 3040 Wireless Access Point

Network and Telecommunication

Dual 80" monitors on main wall with single 70" repeat monitor on each side wall.

Dual confidence monitors will be mounted in ceiling and will face the presenter location.

Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control

Charging pad for microphone batteries

8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to

Master control Workstation

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 512gn Solid State Drive
- o 23" HDMI Monitor
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
- o Dell E514dw Laser Printer
- o Microsoft Office 365
- o Zoom Room Software

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Administrative Conference Room [103]

Access Control

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

Other

- 1 Visix MeetingMinder Room Scheduler
- Adtran UCaaS Communication Device
- Adtran Bluesocket 3040 Wireless Access Point

Dual 55" monitors on main wall.
Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control
Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to

Master control Workstation

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 512gn Solid State Drive
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
- o Microsoft Office 365
- o Zoom Room Software

Medical Room [105]

Access Control

5. Isonas RC-04-MCT-M Card Reader
6. HES-5200C-630 Electric Strike
7. Isonas 10' Pigtail
8. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Vice Principal's Office [106]

Access Control

9. Isonas RC-04-MCT-M Card Reader
10. HES-5200C-630 Electric Strike
11. Isonas 10' Pigtail
12. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 23" HDIM Monitor
- o 512gn Solid State Drive
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o Dell E514dw Laser Printer
- o Microsoft Office 365

Principal's Office [107]

Access Control

13. Isonas RC-04-MCT-M Card Reader
14. HES-5200C-630 Electric Strike
15. Isonas 10' Pigtail
16. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections in each wall

1 55" Monitor on opposing wall
Dual ceiling mics along with two handheld mics and two lavalier mics will be used for transmitting audio. These wireless mics are rechargeable. 8 ceiling speakers will be used for incoming audio. Zoom enabled PC with iPad will be used for control
Charging pad for microphone batteries
8 electrical connections provided above ceiling tiles

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2network connections and optical fiber termination at front of the room

Fiber connection terminates in floor and is directly connected to :

Master control Workstation

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 23" HDIM Monitor
- o 512gn Solid State Drive
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o Dell E514dw Laser Printer
- o PCI Express 10 Gigabit Ethernet Fiber Network Card w/ Open SFP+ - PCIe x4 10GB NIC SFP+ Adapter
- o Microsoft Office 365
- o Zoom Room Software

Access Control

17. Isonas RC-04-MCT-M Card Reader
18. HES-5200C-630 Electric Strike
19. Isonas 10' Pigtail
20. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

4 wired network connections on each wall

2 double socket electrical sockets on each wall

Floor box with 4 electrical connections and 2 ethernet connections

Workstation

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 23" HDIM Monitor
- o 512gn Solid State Drive
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o Dell E514dw Laser Printer
- o Microsoft Office 365

Vestibule [100]

Access control

1. 2 Stanley Motion Sensors   SU-100
2. 1 Stanley Automatic Door   Dura-glide Greenstar 3000
3. Microprocessor Control Unit   Model J Controller
4. Door Sweep   C627 DKB 36"
5. Threshold   896 S 36
6. Motion Sensor   Stanley
7. 10' Pigtail   CABLE10
8. Card Reader (101)   RC-04-MCT-WIO

Digital Signage

Corridor [South]

Access Control

1. Door Closer   CLD-4550 CS
2. Door Sweep   C627 DKB 36"
3. Threshold   896 S 72
4. 10' Pigtail   CABLE10
5. Door Strike   4850PoE
6. Card Reader/Keypad   RC-04-MCT-WK
7. Weather Proofing Kit   ACC-WPK-RC04
8. Rim Panic Exit Device   S600 Spectra
9. Door Contact   GRI-180-12-W

Access Control

1. Door Closer   CLD-4550 CS
2. Door Sweep   C627 DKB 36"
3. Threshold   896 S 72
4. 10' Pigtail   CABLE10
5. Door Strike   4850PoE
6. Card Reader/Keypad   RC-04-MCT-WK
7. Weather Proofing Kit   ACC-WPK-RC04
8. Rim Panic Exit Device   S600 Spectra
9. Door Contact   GRI-180-12-W

Staff Lounge [127]

Access Control

21. Isonas RC-04-MCT-M Card Reader
22. HES-5200C-630 Electric Strike
23. Isonas 10' Pigtail
24. GRI Door Contact W-190-H

Server room [127B]

Access Control

1. Lockset   9K3-7R14D PATD
2. Door Closer   CLD-3550 STD W/PA BRKT
3. Wall Bumper   1270CV
4. Kick Plate   K0050 8" x 34" B4E CSK
5. 10' Pigtail   CABLE10
6. Electric Strike   HES-5200C-630
7. Card Reader/Keypad   RC-04-MCT-WK
8. Door Contact   GRI-180-12-W

Office Manager's Office [112]

Access Control

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):

- o   Intel 7 Processors
- o   16gb RAM
- o   1 TB Disk
- o   23" HDIM Monitor
- o   Cordless Keyboard & Mouse
- o   Windows 10 Professional
- o   Dell E514dw Laser Printer
- o   Microsoft Office 365

Administrative Assistant [108]

Access Control

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):
- o   Intel 7 Processors
- o   16gb RAM
- o   1 TB Disk
- o   23" HDIM Monitor
- o   Cordless Keyboard & Mouse
- o   Windows 10 Professional
- o   Dell E514dw Laser Printer
- o   Microsoft Office 365

Faculty Office Storage Room [113]

<u>Access Control</u>

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

Access Control

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 23" HDIM Monitor
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o Dell E514dw Laser Printer
- o Microsoft Office 365

Accounting Office [110]

<u>Access Control</u>

1. Isonas RC-04-MCT-M Card Reader
2. HES-5200C-630 Electric Strike
3. Isonas 10' Pigtail
4. GRI Door Contact W-190-H

<u>Other</u>

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):

- o Intel 7 Processors
- o 16gb RAM
- o 1 TB Disk
- o 23" HDIM Monitor
- o Cordless Keyboard & Mouse
- o Windows 10 Professional
- o Dell E514dw Laser Printer
- o Microsoft Office 365

Accounting Office [111]

Access Control

25. Isonas RC-04-MCT-M Card Reader
26. HES-5200C-630 Electric Strike
27. Isonas 10' Pigtail
28. GRI Door Contact W-190-H

Other

- Adtran UCaaS Communication Device
- Network connections on each wall

Workstation (Floor Connection 2 electrical and 2 ethernet outlets):

- o   Intel 7 Processors
- o   16gb RAM
- o   1 TB Disk
- o   23" HDIM Monitor
- o   Cordless Keyboard & Mouse
- o   Windows 10 Professional
- o   Dell E514dw Laser Printer
- o   Microsoft Office 365

Main Entrance

Access control

1. 2 Stanley Motion Sensors   SU-100
2. 1 Stanley Automatic Door   Dura-glide Greenstar 3000
3. Microprocessor Control Unit   Model J Controller
4. Door Sweep   C627 DKB 36"
5. Threshold   896 S 36
6. Motion Sensor   Stanley
7. 10' Pigtail   CABLE10
8. Card Reader (101)   RC-04-MCT-WK

Sprinkler riser room [128D]

Access Control

1. Continuous Hinge   662HD UL 83"
2. Mortise Cylinder   1E-74 PATD
3. Door Closer   CLD-4550 CS
4. Door Sweep   C627 DKB 36"
5. Card Reader   RC-04-MCT-W
6. Electric Strike   HES-5200C-630
7. 10' Pigtail   CABLE10
8. Door Contacts   GRI-180-12-W

Electrical Room [128C]

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Access Control

1.	Continuous Hinge	662HD UL 83"
2.	Mortise Cylinder	1E-74 PATD
3.	Door Closer	CLD-4550 CS
4.	Door Sweep	C627 DKB 36"
5.	Card Reader	RC-04-MCT-W
6.	Electric Strike	HES-5200C-630
7.	10' Pigtail	CABLE10

Storage Room [128E]

Access Control

1. Continuous Hinge   662HD UL 83"
2. Mortise Cylinder   1E-74 PATD
3. Door Closer   CLD-4550 CS
4. Door Sweep   C627 DKB 36"
5. Card Reader   RC-04-MCT-W
6. Electric Strike   HES-5200C-630
7. 10' Pigtail   CABLE10

Budget

System	Description	Model Designation	Quantity	Unit Cost	Total Cost
Access Control	Card Reader wiring harness	ISONAS CABLE10 Poigtails	37	$30.00	$1,110.00
Access Control	Card readers - no Keypads	ISONAS RC04-MCT-W	21	$730.00	$15,330.00
Access Control	Card readers with Keypads	ISONAS RC-04-MCT-WK	4	$810.00	$3,240.00
Access Control	Door Sensors	GRI-180-12-W Door Contacts	37	$15.00	$555.00
Access Control	Electric Strikes	HES-5200C-630 Electric Strikes	33	$105.00	$3,465.00
Access Control	External Door Kits	ISONAS ECC-EDK	3	$55.00	$165.00
Access Control	External Motion Sensors	Stanley SU-300 Motion Sensor	4	$375.00	$1,500.00
Access Control	In-Rush suppresors	ISONAS ACC-IRS	3	$47.00	$141.00
Access Control	Internal Motion Sensors	Securitron XMS Motion Sensor	3	$155.00	$465.00
Access Control	Magnetic Locks	BEA Dual Maglock	2	$275.00	$550.00
Access Control	Milestone Xprotect Camera Integration	Milestone Xprotect	1	$10,000.00	$10,000.00
Access Control	Pure Access Control License	ISONAS Cloud License	1	$950.00	$950.00
Access Control	Sliding Door Processors	Stanley Microprocessor Controls (J)	2	$357.00	$714.00
Access Control	Sliding Main Entry Doors	Stanley Dura-glide Greenstar 3000	2	$3,100.00	$6,200.00
Access Control	Weather proofing kits	ISONAS-ACC-WPK-RC04 WPK	3	$35.00	$105.00
Administrative Desktops	8gb Windows w10 Pro Desktops	Dell Optima Workstations	10		$0.00
Administrative Printers	Desktop Printers	Dell E514DW Laser Printers	10	$895.00	$8,950.00
Application Software	Renweb School Management System		1	$2,146.00	$2,146.00
Backup Generator	Kohler KG40 Natural Gas Generator	Kohler KG40	1	$12,540.00	$12,540.00
Card Readers	ISONAS Card Readers	RC04 Readers	35	$750.00	$26,250.00
Ceiling Mic Array	Dual Ceiling Mics	Schure	26	$247.00	$6,422.00
Ceiling Speaker Arrays	8 Speacker Ceiling Array		13	$2,135.00	$27,755.00
Classroom Smart Boards	Aquos Smart boards	Sharp Aquos 80"	7	$6,356.00	$44,492.00
Computer Monitors	23" Desktop Monitors	Dell 23" Video Monitors	24	$155.00	$3,720.00
Fiber NIC Cards	Optical Fiber NIC Cards	PCI Express 10g Ethernet Fiber Card	14	$75.00	$1,050.00
Handheld Mics	Wireless Handheld Mics		26	$325.00	$8,450.00
Internal Fiber/wiring	12 port 10gb Fiber to Ethernet conv	Cisco S5800	3	$12,000.00	$36,000.00
Internal Fiber/wiring	Multi-mode Internodal Fiber		1	$2,000.00	$2,000.00
Internet - 3Gig Fiber	3gig Internet Fiber to building		13	$4,000.00	$52,000.00
Keyboard & Mouse	Desktop Keyboards & Mouse	Dell Keyboard & Mouse	24	$68.00	$1,632.00
Kiosk	Kiosk	Posiflex Broadcast Model	1	$3,100.00	$3,100.00
Lavalier mics	Wireless Lavalier mics		26	$426.00	$11,076.00
Media Converters	Fiber - Ethernet Media Converters	S5800-8TF12S	3	$1,250.00	$3,750.00
Mini PC Sticks	PC Sticks for Digital Signage	Beelink PC Stick s	13	$245.00	$3,185.00
Mobile Smart Boards	Aquos Smart boards - Portable	Sharp Aquos 70" (Mobile)	2	$5,345.00	$10,690.00
Nagios Server Monitor	Nagios Server Monitoring systems	Nagios Server monitor	2	$250.00	$500.00
Network - Firewall	Netgate 1u Gateway Appliance	XG-1541	2	$2,699.00	$5,398.00

Network - Support	Cat6 Cable		50000	$0.05	$2,500.00
Network - Support	Internodal Fiber		1000	$2.00	$2,000.00
Network - Support	Netgate Enterprise Plus Support		1	$3,348.00	$3,348.00
Network Infrastructure	Backup NAS	Synology 30TB DiskStation DS1517+5 Bay	1	$1,200.00	$1,200.00
Network Infrastructure	Backup System - License	Synology Cloud Station Backup	1	$575.00	$575.00
Network Switches	Adtran Netvanta layer3 28 port	Netvanta 1544F	4	$1,350.00	$5,400.00
Network Switches	Adtran Netvanta layer3 28 port POE	Netvanta 1544P	6	$1,560.00	$9,360.00
Office Printer/Fax	Print Servers	Sharp Color Laser Print Server	1	$45,529.88	$45,529.88
Office Printer/Fax	Print Servers	Sharp Color Laser Print Server	1	$29,094.44	$29,094.44
Patch Cable Systems	Neat Patch cable Systems		3	$122.00	$366.00
Patch Panels	Cat6 Patch Panels	Leviton 69270-U48 Patch Panels	3	$246.00	$738.00
Power conditioners	Power Distribution Units		4	$357.00	$1,428.00
Raised Floor		Netfloor USA ECO	18000	$5.00	$90,000.00
Schedulers	Zoom Room Schedulers	Visix Meeting Minder Tablets	16	$215.00	$3,440.00
Server Magagement Services	Sharp Server Management Services	Sharp Server Support	1	$4,200.00	$4,200.00
Server Racks	Dell Server Racks	Dell EMC Netshelter SX 600x1200	2	$1,300.00	$2,600.00
Television Monitors	Digital Signage Monitors	Samsung 60"	8	$495.00	$3,960.00
Television Monitors	VTC Monitors	Samsung 48"	26	$325.00	$8,450.00
UPS	Battery Backup System	Eaton9390IT-UPS	2	$4,670.00	$9,340.00
Video Surveilance Cameras	Aviglon Video Surveillance cameras	Aviglon Video Surveillance Cams	26	$215.00	$5,590.00
VM Host / Server	Dell R7425 VM Server 128g RAM 12 TB	Dell R7425	2	$8,540.00	$17,080.00
VM Server Backup License	VEAM Server Backup L	VEAM	2	$445.00	$890.00
Vmware License	VMWare Hypervisor	VMWARE ESXI 7.0	2	$750.00	$1,500.00
VOIP	UCaaS VOIP Devices	Adtran UCAAS Device	26	$216.00	$5,616.00
VTC workstations	Video Teleconferencing Workstation	I7/16TB/MS10Pro Workstations	14	$1,750.00	$24,500.00
Windows Server License	MS windows Server 2016 enterprise		5	$499.00	$2,495.00
Wireless Access Points	Adtran Wireless Access Points	Adtran Bluesocket 3040 WAPs	21	$210.00	$4,410.00
Zoom Room License	Zoom Room License		14	$49.00	$686.00

$601,892.32

Labor **$146,800.00**

$748,692.32