

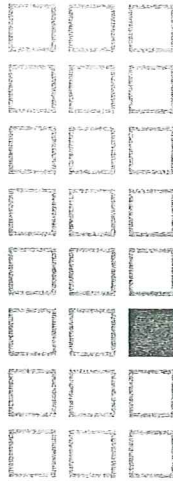
REQUEST FOR PROPOSALS
For
Architectural Services for Four New (replacement) Schools

ATTACHMENT B

**Middle School Education Specs &
Architectural Program (2003)**

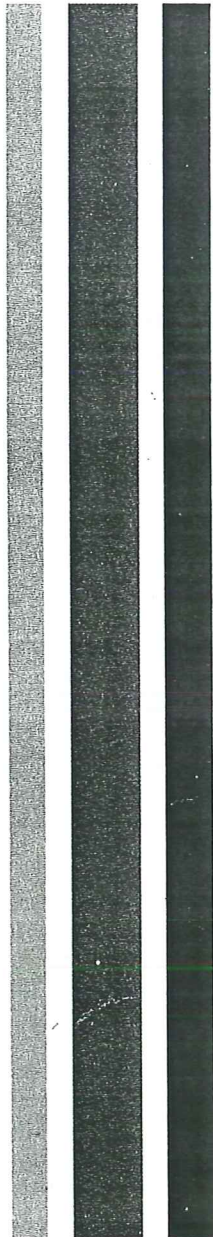


EUGENE
school district



APRIL 2003

**educational
specifications &
architectural
program**



MIDDLE SCHOOL

EUGENE SCHOOL DISTRICT 4J

REPLACEMENT MIDDLE SCHOOLS

EDUCATIONAL SPECIFICATIONS

ARCHITECTURAL PROGRAM

April 2003

Dull Olson Weekes Architects, P.C.

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I. ACKNOWLEDGEMENTS

Board of Education

Mike Fox	
Beth Gerot	Vice Chair
Jan Payton Oliver	Chair
Chris Pryor	
Craig Smith	
Annette Spickard	
Virginia Thompson	

Superintendent

George Russell

Vision & Goals Committee

Nancy Pollard	Principal	Madison
Joy Groshong	Teacher	Madison
Morley Hegstrom	Principal	Cal Young
Linda Ague	Teacher	Cal Young
Tom Stewart	Parent	Cal Young
Bob Bolden	Principal	Roosevelt
Larry Liedtke	Teacher	Roosevelt
Stella Dadson	Principal	Patterson
Julie Barnas	Teacher	Patterson
Tom Maloney	Principal	Crest Drive
Doug Gallup	Principal	Willakenzie
La Vonne Bradford	Teacher	Willakenzie
Maurie Denner	Principal	Washington
Devery Stoneberg	Teacher	Washington
Julie Phillip	Parent	Washington
Kevin Boling	Principal	Westmoreland
Kris Tupper	Parent	Westmoreland
Arun Storrs	Student	South
Bev Mayhew	Citizen	
Holly Monnette	Citizen	
Theresa Garnsey	Instructional Assistant	Willakenzie
Chris Specht	Secretary	Willakenzie
Bill Hirsh	Facilities	
Kay Mehas	Instructional Staff	
Ron Sanetel	Facilities	
Maggie Cline	Teacher	Westmoreland

Vision & Goals Committee Continued

John Churchill	Custodian	Kelly
Paul Duchin	Eugene Education Association	
Beth Gerot	School Board	
Tom Henry	Instruction	
Marilyn Clotz	Student Services	

Middle School Education Specification Committee

Linda Ague	Staff	Cal Young
Tanner Alberts	Student	
Grant Bauers	Parent	Madison
Beth Gerot	Board Member	
Joy Groshong	Staff	Madison
Tom Henry	Instruction	
Bill Hirsh	Facilities	
Larry Liedtke	Staff	Roosevelt
Tom Maloney	Principal	Cal Young
Kay Mehas	Instruction	
Les Moore	CIS	
Don Philpot	Facilities	
Nancy Pollard	Principal	Madison
Eric Schiff	Staff	Cal Young
Dale Smith	Parent	Cal Young
Debra Smith	Parent	Cal Young
Tom Stewart	Parent	Cal Young
Tod Schneider		City of Eugene
Stephanie Yun	Staff	Cal Young
Danielle Carey	Student	Madison
Ashley Francis	Student	Cal Young
Marcus Glassow	Staff	Madison
Lindsey Weir	Student	Madison
Rod Price	Parent	Madison

Resource Staff:

Marilyn Clotz	Education Support Services (Special Education)
Bob Cattoche	Education Support Services (Spec. Education)
Hillary Kittleson	Financial Services
Les Moore	CIS
Sheryl Steinke	CIS
Kim Ketterer	CIS
Bill Hirsh	Facilities
Ron Sanetel	Facilities

II. INTRODUCTION / OVERVIEW

EDUCATIONAL SPECIFICATION/ARCHITECTURAL PROGRAM

In January 2002 a committee of citizens, teachers, administrators and classified personnel was charged to develop the Educational Specifications/Architectural Program for a new elementary school and replacement middle schools in Eugene School District 4J. This effort is paramount to a successful building design and involves the identification of Goals, Values, Ideas, Standards and Requirements envisioned for the new facility.

The intent of the Educational Specification/Architectural Program is to provide an understanding of the Mission/Goals of the school, the design ideas it embodies, the interrelationship of its parts in support of the Mission, and the identification and documentation of specific/functional requirements. The Educational Specifications/Architectural Program is a working document. It represents a foundation on which the design work can begin. It should be noted that this Program can be modified during design to accommodate new input, reevaluated concepts, site or budgetary constraints.

The process and schedule developed to arrive at a completed Educational Specification began in January. The Elementary School Program was completed of May 2002. The Middle School Program was completed February 2003.

The following is a summary of the steps followed to develop the Educational Specification/Architectural Program for the Middle Schools. Refer to the sections that follow and the appendix for additional information.

1. Development of Preliminary Vision and Goal Statements for Middle and Elementary Schools.
2. Visitations
3. Development of Key Planning Ideas.
4. Solidification of the Vision and Goal Statements.
5. Identification of Middle School Area Needs.
6. Solidification of Middle School Needs.
7. Review and Acceptance by the Educational Specification Committee.

EXECUTIVE SUMMARY

Eugene School District 4J is located in Eugene Oregon at the Southern end of the Willamette Valley. Eugene is home to the University of Oregon as well as a number of local, regional, national, and international businesses. The School District has approximately 18,000 students housed in eight (8) High Schools, thirteen (13) Middle Schools and thirty-one (31) Elementary Schools. Enrollment in 4J is steadily decreasing and its facilities are aging. Operating funds predominantly provided by the State of Oregon have been continuously reduced in the last several years resulting in less operating revenue for the District. In order to address this revenue short fall and contracting enrollment the District has proactively implemented a series of operational funding reductions including closure of schools. In 2000 the School District formed a Strategic Facilities Planning Advisory Committee (SFPAC) to develop and recommend a Long Range Building/Facility Plan. Committee members included twenty-one(21) community members, parents, students, teachers, classified staff, administrators and school board members. The SFPAC started with planning and analysis done over the years by 4J's Facilities Management Department. The group also drew from work and recommendations of 4J's Schools of the Future Committee (1999 – 2000) and the School Closure Consolidation and Replacement Committee (2000 – 2001). In November of 2001 the SFPAC completed its work and forwarded its recommendations to the School Board.

Strategic Facilities Planning Advisory Committee (Excerpt from Long Range Facilities Plan)

"Fewer buildings, built better and maintained well"

The school district should ask voters to make a series of investments over the next 24 years. This would ensure that 4J provides a safe and stimulating learning environment for students and minimizes building maintenance and operating costs.

The strategic direction for the future is:

- To replace or fully renovate aging elementary and middle school buildings those no longer adequately serve students.
- To remodel high schools in stages, replacing portable classrooms and improving instruction and student activity spaces.
- To more closely match available space with enrollment at the elementary level, through school consolidations.
- To replace and upgrade capital systems, such as roofs, wiring, plumbing, and fire and security systems as needed to prolong the useful life of the buildings and to upgrade the technology infrastructure to support current instructional needs.
- To dispose of surplus property that will not be needed in the future for educational purposes or to seek long-term leases that would financially benefit the district.
- To improve instructional spaces throughout the district.

The overall result will be better buildings that are less expensive to operate and maintain and that better support student learning.

Initial Recommendation:

Based on analysis by the Strategic Facilities Planning Advisory Committee, SFPAC recommended a series of implementation strategies to accomplish the District's desired Facilities and Operational Goals. The first recommendation was to propose a Capital Bond as follows:

- Consolidation and replacement of Patterson and Westmoreland elementary schools with a new school on the Patterson site.
- Consolidation and replacement of Washington and Willakenzie elementary schools with a new school at a site adjacent to Monroe Middle School.
- Replacement or full renovation of Cal Young, Madison and Roosevelt Middle schools.
- Major remodeling projects at all high schools.
 - New science wing and student center at North Eugene High plus smaller remodels (in locker rooms and auditorium)
 - New science and technology wing at Sheldon High, remodel of current technology and science classrooms for larger general instruction space.
 - New student center at South Eugene High.
 - New science wing at Churchill High, removal of portable classrooms and remodel of current science classrooms for larger general instruction space.
 - New regional science center (Rachel Carson Center for Natural Resources) in conjunction with the Churchill science program.
- Replacement of a number of older portable classrooms.
- Upgrades at most school sites to improve the instructional environment.
- Funds for increased security at schools.
- Funds for the technology infrastructure needed to allow students and staff to better use the internet and other computer technology.
- Replacement of critical building systems, such as heating/ventilation, plumbing, lighting and electrical upgrades.

Final Recommendation:

This Initial Recommendation was forwarded to the Superintendent for consideration. After analysis the Superintendent forwarded a final recommendation to the Board for consideration.

In light of projected operating shortfalls for the district, and analysis by the Strategic Facilities Planning Advisory Committee, Recommendations of the School Closure, Consolidation/Replacement Committee and Superintendent Review the School Board in February 2002 voted to place a \$116,000,000 Capital Bond Measure on the May 21, 2002 Ballot. The goal is to provide better instructional facilities for students, consolidate facilities and replace aging buildings that are outdated and costly to maintain.

The measure would replace two (2) aging Middle Schools and build two (2) new elementary schools that would allow the district to close four (4) older schools. The bond would also include remodeling or additions at several schools, major repairs/replacement of building systems and safety/security improvements throughout the district.

The purpose of this document is to outline the Educational Program and resultant Architectural Program for two (2) replacement Middle Schools. These schools will replace Cal Young and Madison Middle Schools in support of the SFPAC recommendation. These new schools are viewed as the first step of a process in which schools in 4J, overtime, will be remodeled or replaced. The nature of this Program and resultant design is to be a model on which future schools will emerge.

DISTRICT 4J GUIDING PRINCIPALS

The following are Values and Principals that guide District 4J.

Basic Beliefs

- This is a student-centered district; everything we do must be good for children.
- We realize that to get better implies change; we should be investigating, learning, trying, exploring fine-tuning and constantly leading progress.
- We create an environment in our district that is demanding but nurturing, rigorous but compassionate, safe but risk-taking. We foster both independence and collaboration and require accountability as well as involvement from everyone.

Philosophy

- The fundamental purpose of District 4J is to give each of our students an excellent education; we invest in our students because they are our future.
- An excellent education will prepare students to become thoughtful, responsible citizens in our democratic society, engage in productive work, be skillful in relationships with others, and find pleasure in the worthy use of leisure time.

About Students

- Students will be treated with respect, dignity, and warmth so that they will want to come to school. We believe learning is natural for all human beings. Given the right circumstance, which includes a positive and supportive climate, every student can learn effectively in school.
- Each student brings a unique set of experiences and needs to the school. We must be prepared to take students as they come to us and to provide each one with an excellent education.
- School district staff should be advocates for the needs of children. Students will leave school prepared to be productive young adults able to work and engage in continued education or training.
- Employees can expect employment security when they perform adequately and their work supports the mission of the district.
- We won't ask people to do the impossible; work assignments are commensurate with making process of their school or department as well as the school district. If employees are involved in decisions, they can identify many opportunities for program improvements and create organizational efficiencies.

About Community and Parents

- Parents are central to the life of children, and therefore must be major participants in the educational process.
- Parents and the community will be involved in planning and implementing the education program. It is our responsibility to be certain that citizens understand the lifelong value a good education system brings to the community.

About Resources

- To the extent possible, our resources will go directly into the instructional process.
- We are good stewards of the funds we receive from the public. We are responsible for taking care of the schools and other facilities our community has entrusted to us to ensure that our buildings and equipment are safe, attractive, and comfortable.

Site-Based Decisions-Making Boundaries

4J supports a site based management model. In support of this model each school shall be consistent with the district mission.

- Do what is best for the students
- Promote individual dignity
- Enhance the quality of instruction
- Involve all persons, groups, or sites affected by a decision (students, parents, staff, community, public agencies, business)
- Respond to legal requirements, state rules, district policies, contracts, and available resources.
- Be responsible and accountable

III. SCHOOLS OF THE FUTURE REPORT

The design of new middle schools and elementary schools should support the educational mission of the school district as outlined in the Schools of the Future Report. The Schools of the Future Report is included in the Appendix. Supporting this report are three Areas of Focus; Educational Program, Facilities and Technology. The following summarizes the needs/expectations for those Focus Areas.

SCHOOLS OF THE FUTURE FOCUS AREAS

(Excerpted from the Schools of the Future Report)

Educational Program

1. Schools must educate the whole student, addressing such areas as wellness, life skills, social skills, and community involvement.
2. Students must be prepared to be life-long learners who understand how to effectively and efficiently access information, process and integrate information, evaluate information, and create information.
3. Schools climate must promote a sense of connectedness and belonging for all students.
4. Schools need to have a curriculum that provides students with essential career, academic and life skills for the new century, including computer and technological literacy, critical process skills, language literacy, understanding of the principles and processes of academic content disciplines, and fluency in reading, writing, speaking and mathematics.
5. Across the school district, schools must provide for all students equitable opportunities and access to a comprehensive curriculum, including essential instructional programs and services, variety of learning experiences at all grade levels, and learning opportunities based on individual needs.
6. Students' learning and instruction must extend to the wider world outside the classroom in order to integrate and apply knowledge in a multi-dimensional and more complex context.
7. Schools should encourage the full potential of every student by recognizing every child's strong points, recognizing and fostering creativity of all kinds and utilizing all learning styles in instruction.
8. There is a need for schools to assess students in order to foster their achievement and success. Such an assessment system should use multiple ways to measure student progress, keep the student in mind, and develop a sense of urgency for intervention.
9. To guide decisions concerning changes in curriculum, programs, resource allocation and school climate, schools must use ongoing, multiple strategies; a systems approach must be used to program evaluation and students must be given an opportunity to participate in program evaluation.

-
10. Schools need to become a vital part of the neighborhood communities in which they are located, and their internal organization must create a nurturing community for students. This means that schools must realize the viability of both schools and neighborhoods; optimize size advantages of both large and small learning communities provide access for all students to a full array of educational programs; and explore alternatives to neighborhood school closure.
 11. School schedules acknowledge different learning styles and foster continuous learning.
 12. Parents need opportunities to play an active and vital role in the school community.
 13. There is a need for schools to provide ongoing staff development programs and individual teacher support for new teachers, veteran teachers and struggling teachers.

Facilities

1. Physical Structure and Design
 - Eugene's schools will be the community's finest public buildings, designed to reflect the community's love of learning and its respect for its children. Our schools will be healthy buildings where the occupant's wellbeing is a top priority and where students, staff and the community feel welcome, valued, stimulated, and safe.
2. Comprehensive Building and Campus Utilization
 - Schools, as significant community capital investments, will be fully utilized. Schools will be flexible in time, space and resources, in order to accommodate sustained multiple use. Schools will be accessible throughout the campus for staff, students, parents, and the full community, including those with disabilities.
3. School Safety and Security
 - Our schools will be safe havens. They will also be places that create hope, and set a tone that is positive and welcoming to all. Safety will be a high priority. Physical and technological improvements will be cost effective and non-threatening. School safety will encompass the entire campus and the interface with the surrounding streets and neighborhoods. School security measures will provide protection from early morning until late at night, year-round.

Technology

Vision Statement:

Teachers and students will use information technology and network tools to change the teaching/learning dynamic.

Some guiding assumptions:

- Staff and student use of technology will promote and facilitate student collaborative learning based on self-navigated and interactive journeys through the curriculum material.
- Learning will be inquiry based; students will learn through robust simulations that stimulate questions.
- Learning will be activity based enabling students to interactively probe and query curriculum materials and information resources.
- Technology will engage students by enabling them to form a learning community without regard to the location of the participants.
- Technology will be a medium to:
 - a. Create life-long learning processes;
 - b. Meet the needs of diverse learners in the classroom and community;
 - c. Increase students' academic independence;
 - d. Help students prepare for better careers through new learning processes and skill mastery.

Methods or Styles of Curriculum/Technology Integration.

- Teachers will focus on individualized instruction and on project-based learning.
- Students will use technology for exploration and discovery (e.g. through simulations and interactive learning).
- Collaborative learning will be facilitated through the use of technology.
- Students will have access to distance learning.
- Students will use technology to access, evaluate, incorporate and create information.

Type of Technology

- As professionals, teachers will have professional software and the hardware that runs it.
- Students will have technology and software that is instructionally appropriate to their level and that will eventually prepare them for the workplace and higher education.

Quantities of Technology

- Each teacher will have a networked access device (i.e. computer) in their classroom for their uses.
- District 4J will adopt the recommended ratio of one computer for every four students. Teachers and students will have access to sufficient, innovative technological tools, including but not limited to networked printers, faxes presentation devices, software, and data capture devices (i.e. digital cameras) and image manipulation tools.

Availability of information (Learning anytime, Anywhere)

- Information will be accessible from home as well as at school.
- District 4J will continue to make available networked information resource (e.g. World Book, Encyclopedia Britannica, web resources, educational curriculum kits, distance learning programs...)
- District 4J will provide and receive web-based information about the district. The school will provide and receive web-based information about the school. The teacher will provide and receive web-based information about the classroom.
- District 4J will make a commitment to provide students with in-school and remote access to space on file servers, web servers and email to promote technology use and encourage skill acquisitions.

Technical Support of Technology

- Broken equipment will be repaired or replaced within 48 hours.
- District 4J will provide the technical support needed to maintain its technology.
- The District's goal is for technology to be operational 99.5% of the time so that teachers and students will have the tools needed to learn, and the confidence in the district necessary for innovative educational change.

Interaction with Community

- District 4J, university, public utilities, and municipal governments will collaborate to create a high-speed (fiber) infrastructure for the exchange of voice, video and data.
- Teachers and students will have access to a variety of technology training and educational services for students through community partnerships (library, WISTEC, university, community centers, etc.)
- District 4J will publish an on-line staff directory (to include staff members' school, email, phone, and fax).

Equal Access to Technology

- The district needs to develop strategies for providing student access to technology during non-school hours. Therefore, on an annual basis, district 4J will survey student access to technology in and out of the classroom. Based on the survey, district 4J, in cooperation with community partners, will develop strategies to equalize student access.
- Technology will be flexibly deployed to make it available when, where, and in the quantity and quality needed at home, in the community and at school.
- Staff training will include strategies for addressing technology equity within the classroom and promoting full participation of all students.
- The Technology Steering Committee should review the allocation of all technology resources.

IV. DESIGN VISION & GOALS

District 4J intends to Design and Construct two Elementary and two Middle Schools. In all cases these are replacement schools. The design of the New Elementary and Middle Schools shall support the Schools of the Future Report and the District's Mission Statement. The following Design Vision and Goal Statements support both the Middle and Elementary Schools and are common to both. They describe the design characteristics that all Middle and Elementary Schools in 4J should embody. All statements are considered equal and not hierarchical.

I CENTERS OF EXCELLENCE

New schools will represent the best elements of schoolhouse design and incorporate the most successful teaching and learning strategies.

Goal: New Schools will support and convey the importance of education.

Goal: New Schools will reflect the vision articulated in the Schools of the Future Report.

Goal: New Schools will be showcases that reflect the community's highest educational aspirations for its children.

Goal: New Schools will be flexible in arrangement to accommodate a variety of grade configurations.

Goal: The design of new school(s) will support "educational best practices" and reflect the core values of District 4J.

Goal: Resources and information on local, regional and national trends in design will be considered when developing new school design.

II STUDENT CENTERED DESIGN

New schools will be designed to accommodate the physical, emotional and educational needs of the students within the facility.

Goal: School(s) will be designed to be "student centered". They will contain a variety of scales, materials and physical configurations with the students and other users in mind.

Goal: School(s) will be designed to foster a connection between students and the natural environment.

Goal: School(s) will have a welcoming/inviting feeling that creates a comfortable and nurturing sense of place and a positive school climate.

Goal: School(s) will be arranged so that the program, space and equipment needs of students are readily accessible.

Goal: Schools will be designed to foster a sense of community at different levels, with the classroom analogous to a "family", a cluster of classrooms analogous to a "neighborhood", and the entire school analogous to the larger "community".

Goal: Schools will celebrate and showcase the process of teaching and learning and the achievements of its students

III COMMUNITY/NEIGHBORHOODS

New schools are community assets and will be designed to accommodate and encourage community partnerships and use.

Goal: Schools are the “centers” of their neighborhoods and will support/reflect the positive and healthy activities of the community.

Goal: New Schools will be designed to accommodate community partnerships and neighborhood uses that support the whole child.

Goal: New Schools will be designed to accommodate future community activities like health clinics, libraries and senior services.

Goal: New Schools will welcome school volunteers and provide appropriate spaces and equipment to support their activities.

IV QUALITY

New Schools will be designed using high-quality, long-lasting materials and building systems.

Goal: The design(s) for new schools will be timeless. They will avoid current trends, styles or features that would date them. They will create a strong sense of place, be well detailed and of high quality.

Goal: New Schools will be designed with long lasting durable materials that are easy to maintain and are compatible with the surroundings.

Goal: New Schools will be energy efficient.

Goal: New Schools will be designed to minimize operating and maintenance costs.

Goal: New Schools will incorporate proven “green building” technologies that support quality teaching and learning environments when economically feasible.

Goal: New Schools will contain appropriate spaces, equipment, and infrastructure to support students, staff and volunteers.

Goal: New Schools will be designed in a manner that allows its users to flexibly modify space to accommodate a variety of uses and activities.

Goal: New Schools will be designed in a manner that allows change over time, including the ability to adapt existing space to new uses and configurations.

Goal: New School(s) will incorporate acoustical control, natural light, clean air, healthy building technologies and design strategies to support quality teaching and learning.

VI CHARACTER

New schools will be compatible with and enhance the character of the neighborhood(s) in which they reside.

Goal: New Schools are significant and important community assets and will be considered an excellent example of public and educational architecture.

Goal: Within New Schools the unique characteristics and cultural diversity of the community in which they reside should be reflected. As the culture of each school evolves with time schools will incorporate strategies to accommodate and reflect those changes.

VI INTEGRATION OF TECHNOLOGY

New schools will accommodate current and future technological tools in a meaningful way.

Goal: The ability to learn, apply skills, and access technology in new schools will be seamless. It should be a readily available companion to the teaching and learning process.

Goal: The use of technology in new schools will support the teaching and learning goals of the school.

Goal: Technology infrastructure will be easily maintainable, expandable and adaptable to existing and future needs.

VII HEALTH / SAFETY / SECURITY

New schools will be safe, secure, and healthy facilities.

Goal: New Schools will be designed to be and feel safe and secure, while maintaining a warm, friendly school environment.

Goal: New Schools will be designed to minimize supervision of students outside of the classroom (e.g., playgrounds, cafeteria, restrooms).

Goal: New Schools will be designed to accommodate specific community/school activities in designated zones, each zone to include restrooms.

Goal: New Schools will be designed for safe pedestrian, bus and vehicular traffic circulation.

Goal: New Schools will be designed to control the activities and interface between community use and educational activities.

Goal: New Schools will be a healthy environment for students and staff. They will contain adequate lighting, natural light and ventilation, acoustical control and healthy building materials/systems, to support the users of the facilities.

V. MIDDLE SCHOOL REPORT

The design of the new middle schools should support the Middle School Vision as outlined in the Middle School Report issued in 2000. Refer to Appendix for a copy of this report.

VI. AREA PROGRAM

SUMMARY OF BUILDING FUNCTIONS/NEEDS

Interior Area	Original Total Area/sf
Administration	3,900
Gymnasium/Cafeteria	27,350
Classroom	31,570
Media	4,200
Exploratory	12,350
Support	6,920
Total Interior Area	86,290
Net to Gross Factor (1.245) (2)	21,573
Net Area	107,863
Mechanical Fan Rooms (7,500 sf)	3,750
Covered Play (6,800 sf)	3,400
Total Gross Area	115,013

Note:

- (1) Additive/Deductive Alternate
- (2) Includes Lockers
- (3) Mechanical fan equipment to be compactly designed including stacking of units and other strategies.

Eugene School District 4J
Middle Schools
Educational Specification / Architectural Program

AREA PROGRAM

NEW MIDDLE SCHOOL(S)

Eugene School District 4J
Middle Schools
Educational Specification / Architectural Program

CAL YOUNG MIDDLE SCHOOL

Eugene School District 4J
Middle Schools

Educational Specification / Architectural Program

CAL YOUNG MIDDLE SCHOOL

ADMINISTRATION AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Waiting	1	120	120		
Reception/Secretary (2 Secretary/1 Work Study/ 1 Student)	1	350	350	370	398
Head Secretary Office	1	100	100		
Health Room/Toilet	1	150	150	310	194
Principal's Office	1	180	180	140	117
Vice Principal's Office	1	120	120	140	117
Conference Room	1	180	180		142
Student Support Suite					
- Open Offices (3)	4	90	360	130	56 - 74
- Enclosed Offices (3)	2	120	240		
- Conference Room	0	200	0		
- Academic/Behavior Area (4)	0	400	0		
- Common Area	1	200	200		
Workroom	1	350	350	84 or 330	
Staff Room	1	500	500	650 (2)	600
Volunteer Room	1	150	150		
Toilet Rooms	2	50	100		
Administration Total Area			3,100		

Notes:

- (1) Includes Nurses Offices and Health Room
- (2) Includes Faculty Lounge and Faculty Lunch Room
- (3) Combination Itinerant and Student Support Offices
- (4) Use Space in Media Center

CAL YOUNG MIDDLE SCHOOL

GYMNASIUM / CAFETERIA AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Gymnasium #1 (Competition)	1	7,300	7,300	7,084	7,452
Gymnasium #2 (Practice)	1	6,376	6,376	4,528	6,020
Male Lockers/Shower	1	2,000	2,000	1,591 (2)	1,855 (6)
Female Lockers/Shower	1	2,000	2,000	1,304 (4)	1,520 (5)
Wrestling/Dance/Multipurpose (7)	1	0	0	960 (3)	
Storage / Office	1	600	600		
Cafeteria / Multipurpose (8)	1	4,000	4,000	2,635	3,157
Kitchen	1	1,400	1,400	795 (1)	1,031
Game Room / Student Lounge (9)	1	200	200		
Chair Storage	1	200	200		178
Stage (10)	1	0	0	0	0
Gymnasium/Cafeteria Total Area			24,076		

Notes:

- (1) Includes Serving, Kitchen Storage, Kitchen Restroom and Kitchen
- (2) Includes Boy's Locker Room, Boy's Restroom, Boy's Shower, Boy's PE Storage, Coach's Office and Coach's Shower
- (3) Weight Room Dimensions
- (4) Includes Girl's Dressing, Girl's Shower, Girl's Restroom, Storage, Storage Hall E, PE Equipment Storage, PE Coach's Office and Coach's Office
- (5) Includes Office, Restroom, Shower, Girl's Dressing Room, Lockers
- (6) Includes Locker Room, Restroom, Shower Room, Laundry, Equipment Room, Uniform Room, PE Office, PE Toilet, PE Shower. Excludes 7th Grade Locker Room
- (7) Use Cafeteria/Multipurpose
- (8) Provide matt hoist and mirrors
- (9) Make an alcove in the cafeteria
- (10) Create stage within Cafeteria. Locate adjacent to Competition Gymnasium.

Eugene School District 4J
Middle Schools

Educational Specification / Architectural Program

CAL YOUNG MIDDLE SCHOOL

CLASSROOM AREA - Regular/Special Education/Auxiliary

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
General Classrooms (3)	13	1,100	14,300	833 to 1,200 (1)	852 - 1,088 (2)
Science Classrooms	3	1,100	3,300		
Science Prep Rooms	1	300	300		
Special Education Classrooms	3	1,100	3,300		
Small Group Instruction	0	200	0		
Toilet/Changing Room	1	190	190		
Commons	4	1,000	4,000		
Classroom Total Area			25,390		

Note:

- (1) Average Classroom size is approximately 950 sf
- (2) Includes Portables: Average Classroom size is approximately 950 sf.
- (3) English, Math, Social Studies, 2nd Language

CAL YOUNG MIDDLE SCHOOL

MEDIA AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Library/Media	1	3,000	3,000	2,176 (2)	1,864
Computer Area	1	800	800		
Workroom	1	400	400	720 (1)	624
Media Total Area			4,200		

Note:

- (1) Includes IMC Storage and Library Office, IMC and Library Storage
- (2) IMC on Area Calculations sheet not contained here

CAL YOUNG MIDDLE SCHOOL

EXPLORATORY AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Band Classroom/Choir/Drama/Office	1	3,250	3,250	1,990	1,762 (2)
Exploratory Multi Use Room (4) (6)	3	4,800	4,800	1,200 - 2,460 (1)	983 - 2,150
Second Language (3)	0	0	0		
Exploratory Total Area			8,050		

Notes:

- (1) Includes Typing, Metal Shop, Wood Shop, Home Economics Cooking, Home Economics Sewing as described in the Eugene School District 4J Facility Survey. Some functions listed no longer exist or have been converted to other uses.
- (2) Includes Instrument Storage, 2 Practice rooms and Band room. Excludes Music Room.
- (3) Included in General Classroom(s)
- (4) Create 3 spaces from 4,800 sf during design. Functions to be determined but may include Art, Woods and Computer Labs. Consider increasing size of building by constructing cheaper space overall or bid as an Additive Alternate.
- (5) Create 2 Music Rooms for Band, Choir, Drama and Support Functions during design.
- (6) Provide a Covered Area (2,000 - 3,000 sf) outside for exterior learning. Covered Area is not included in overall Gross Building Area and is to be bid as an Additive Alternate

CAL YOUNG MIDDLE SCHOOL

SUPPORT AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Student Toilet Rooms (Boys/Girls)	6	380	2,280		
Staff Toilet Rooms	2	150	300		
MDF (Main Distribution Room)	1	180	180		
IDF (Intermediate Distribution Room(s))	1	40	40		
Custodial Office/Storage	1	500	500		
Custodial Rooms	2	60	120		
Building Storage	1	800	800		
Boiler Room	1	400	400	1,100	
Electrical Rooms	1	400	400		
Laundry Room Area	0	100	0		
Kiln Room	1	80	80		
Support Total Area			5,100		

MADISON MIDDLE SCHOOL

Eugene School District 4J
Middle Schools
Educational Specification / Architectural Program

MADISON MIDDLE SCHOOL

ADMINISTRATION AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Waiting	1	120	120	200	
Reception/Secretary (2 Secretary/1 Work Study/ 1 Student)	1	350	350	370	398
Head Secretary Office	1	100	100		
Health Room/Toilet	1	150	150	310	194
Principal's Office	1	180	180	140	117
Vice Principal's Office	1	120	120	140	117
Conference Room (5)	1	180	180		142
Student Support Suite					
- Open Offices (3)	4	90	360	130	56 - 74
- Enclosed Offices (3)	2	120	240		
- Conference Room	0	200	0		
- Academic/Behavior Area (4)	0	400	0		
- Common Area	1	200	200		
Workroom	1	350	350	84 or 330	
Staff Room	1	500	500	650 (2)	600
Volunteer Room	1	150	150		
Toilet Rooms	2	50	100		
Administration Total Area			3,100		

Notes:

- (1) Includes Nurses Offices and Health Room
- (2) Includes Faculty Lounge and Faculty Lunch Room
- (3) Combination Itinerant and Student Support Offices
- (4) Use Space in Media Center
- (5) Size for 8 - 12 people

MADISON MIDDLE SCHOOL

GYMNASIUM / CAFETERIA AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Gymnasium #1 (Competition)	1	7,500	7,500	7,084	7,452
Gymnasium #2 (Practice)	1	5,900	5,900	4,528	6,020
Male Lockers/Shower	1	2,000	2,000	1591 (2)	1,855 (6)
Female Lockers/Shower	1	2,000	2,000	1,304 (4)	1,520 (5)
Wrestling/Dance/Multipurpose (7)	1	0	0	960 (3)	
Storage / Office	1	600	600		
Cafeteria/Multipurpose (8)	1	3,500	3,500	2,635	3,157
Kitchen	1	1,400	1,400	795 (1)	1,031
Game Room / Student Lounge (9)	1	200	200		
Chair Storage	1	200	200		178
Stage (10)	1	0	0		
Gymnasium/Cafeteria Total Area			23,300		

Notes:

- (1) Includes Serving, Kitchen Storage, Kitchen Restroom and Kitchen
- (2) Includes Boy's Locker Room, Boy's Restroom, Boy's Shower, Boy's PE Storage, Coach's Office and Coach's Shower
- (3) Weight Room Dimensions
- (4) Includes Girl's Dressing, Girl's Shower, Girl's Restroom, Storage, Storage Hall E, PE Equipment Storage, PE Coach's Office and Coach's Office
- (5) Includes Office, Restroom, Shower, Girl's Dressing Room, Lockers
- (6) Includes Locker Room, Restroom, Shower Room, Laundry, Equipment Room, Uniform Room, PE Office, PE Toilet, PE Shower. Excludes 7th Grade Locker Room
- (7) Use Cafeteria / Multipurpose
- (8) Provide Matt Hoist and Mirror's
- (9) Make an Alcove in the Cafeteria
- (10) Create stage within Cafeteria locate adjacent to Competition Gymnasium

Eugene School District 4J
Middle Schools

Educational Specification / Architectural Program

MADISON MIDDLE SCHOOL

CLASSROOM AREA - Regular/Special Education/Auxiliary

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
General Classrooms (3)	12	1,050	12,600	833 to 1,200 (1)	852 - 1,088 (2)
Science Classrooms	3	1,100	3,300		
Science Prep Rooms	1	300	300		
Special Education Classrooms	3	1,100	3,300		
Small Group Instruction	0	200	0		
Toilet/Changing Room	1	190	190		
Commons	4	1,000	4,000		
Classroom Total Area			23,690		

Note:

- (1) Average Classroom size is approximately 950 sf
- (2) Includes Portables: Average Classroom size is approximately 950 sf.
- (3) English, Math, Social Studies, 2nd Language

MADISON MIDDLE SCHOOL

MEDIA AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Library/Media	1	2,340	2,340	2,176 (2)	1,864
Computer Area	1	800	800		
Workroom	1	400	400	720 (1)	624
Media Total Area			3,540		

Note:

- (1) Includes IMC Storage and Library Office, IMC and Library Storage
- (2) IMC on Area Calculations sheet not contained here
- (3) Develop design strategies to add between 600 and 1,000 sf to the Media Center if savings during design or additional funds become available.

MADISON MIDDLE SCHOOL

EXPLORATORY AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Band Classroom	1	1,800	1,800	1,990	1,762 (2)
Music Office	1	150	150	97	
Choir / Drama	1	1,300	1,300	1,161	
Exploratory Multi Use Room (4) (5) (7) - Home Consumer Studies (1,400 sf) - Child Care/Pre-School (1,100 sf) (6) - Art (1,400 sf) - Woods (1,800 sf)	4	5,700	5,700	1,200 - 2,460 (1)	983 - 2,150
Second Language (3)	0	0	0		
Exploratory Total Area			8,950		

Notes:

- (1) Includes Typing, Metal Shop, Wood Shop, Home Economics Cooking, Home Economics Sewing as described in the Eugene School District 4J Facility Survey. Some functions listed no longer exist or have been converted to other uses.
- (2) Includes Instrument Storage, 2 Practice rooms and Band room. Excludes Music Room.
- (3) Included in General Classrooms
- (4) Create 4 spaces from 5,700 sf. Woods requires storage which is not included in the 5,700 sf. Consider increasing size of building by constructing cheaper space overall or bid storage as an Additive Alternate.
- (5) Provide a Covered Area (2,000 - 3,000 sf) for Exterior Learning or support for Exploratory Programs. Covered Area is not included in the overall Gross Building Area and is to be bid as an Additive Alternate.
- (6) Provide Exterior Play Area for Pre-School/Child Care. Consider locating a portion of this area under the Covered Area (Note 5 above)
- (7) The sf areas listed will require further refinement during design.

MADISON MIDDLE SCHOOL

SUPPORT AREA

Room	Quantity	Size	Total Area	Current Cal Young	Current Madison
Student Toilet Rooms (Boys/Girls)	6	380	2,280		
Staff Toilet Rooms	2	150	300		
MDF (Main Distribution Room)	1	180	180		
IDF (Intermediate Distribution Room(s))	1	40	40		
Custodial Office/Storage	1	500	500		
Custodial Rooms	2	60	120		
Building Storage	1	800	800		
Boiler Room	1	400	400	1,100	
Electrical Rooms	1	400	400		
Laundry Room Area	0	100	0		
Kiln Room	1	80	80		
Support Total Area			5,100		

ADDITIONAL FUNCTIONS AND REQUIREMENTS FOR CAL YOUNG & MADISON

EXTERIOR FUNCTIONS/NEEDS

Parking

- As required by code. (Confirm parking requirements with 4J Facilities Department)

Bus Drop Off

- District 4J to provide required bus parking needs during design.
- Provide Separate Parent Drop Off and Bus Parking Area.
- If possible separate on site Bus Circulation from Pedestrian and Automobile Circulation.

Covered Play

- 4,000 sf – 5,000 sf
- Covered Play structure to be designed and bid as an Additive Alternate.
- Locate adjacent to Building and near cafeteria.

Hard Surface Play Area

- Provide central hard surface Play Area of approximately 10,000 sf.
- Locate adjacent to future covered play structure and cafeteria.
- Locate adjacent to “activity areas” of the middle school.
- Locate so that activities do not acoustically impact classrooms.

Play Equipment

- Equipment needs to be provided by the School District.

Activity Fields

- Types and Quantities of athletic fields to be provided by 4J during design.
- Locate near Gymnasium.

Outdoor Education Area

- Configure Building and Site to create outdoor areas that can be used for on going educational activities and projects. Projects could include science, art or construction activities.
- Provide hose bib in each area.
- Locate near (preferably adjacent) to the classrooms.

Maintenance

- Provide vehicle paths around perimeter of Building for access and repair purposes.
- Provide hose bib a minimum of 200 feet on center around Building (average hose length is 100 ft).
- Slope all hard and landscape surfaces away from the building.
- Exterior building materials shall be low maintenance long lasting and durable including brick and sloped metal roofs.

Lighting

- Schools shall provide for both "lighted" and "black out" capabilities.
- Lighting should be positioned to avoid light trespassing on adjacent properties.

FUTURE FUNCTIONS/NEEDS

1. Future Expansion
 - Additional Classrooms
 - Additional Gymnasium
2. Grade Reconfiguration
 - Grade alignments may change in the future. Therefore consider additional grade configurations (including K-8) when designing.
3. Portables
 - Provide space for future portable classrooms.
4. City Function
 - Skate Park at Madison. Maintain Skate Park at Cal Young.
 - Community Center or Boys and Girls Club at Madison

Section VII

This section was last updated April, 2007.

This section will be updated prior to design beginning.

VII. TECHNICAL REQUIREMENTS

School District 4J New Middle Schools

Building System and Material Requirements

General Requirements

Indoor air quality:

The District is concerned about indoor air quality and its effects on the health of the occupants. The following general guidelines are to be followed:

- Eliminate the source of the pollutants by using materials with the lowest possible emission rates.
- Separate problem materials from occupied spaces by the use of air and vapor barriers.
- Ventilate with mechanical systems designed to remove pollutants and provide cleaned outdoor air. Design systems to appropriately exhaust harmful or undesirable emissions from science and other areas where they might be generated.
- Evaluate building materials using the following principals:
 - Avoid materials that emit formaldehyde
 - Use interior finishes that are low-toxicity, water-based, with low emission rates.
 - Use hard-finish flooring wherever possible.
 - Design and install adequate ventilation for all spaces.
 - Use air, vapor, weather and moisture barriers.
 - Understand school usage in terms of potential pollutants.

Durable Materials:

It is the intention of the District to build buildings that utilize durable materials with an expected life of 50-75 years. Materials subject to wear, weather, abuse should be selected with this in mind.

Low maintenance:

Given the current state funding limitations, it is important the building be as low in maintenance as possible. This is to be a consideration in the selection of materials and systems.

ADA Accessibility Requirements:

Use "Draft Recommendation for Accessibility Standards for Children's Environments" wherever appropriate.

Site Improvements

Drainage and Site Utilities

- Foundation drain tile to be rigid, perforated, smooth-interior PVC, surrounded by drain rock fully wrapped in drainage fabric. Minimum of 9" drain rock above and on each side of drainage pipe.
- Play equipment areas to be excavated approximately 21 inches below finished play surface, with native soil surface shaped to provide positive drainage (minimum 2%) to drain trench system. Each drain trench constructed similar to foundation drains and spaced no more than 20 feet apart. Drain trench piping sloped minimum 2% to discharge point. Provide geotextile fabric between trenches. Provide 9" of 1/2" or 3/4" open drain rock over entire play area. Provided min. 12" fall protection material (wood chips – Rexius grade "fiber-x") on top of rock layer.
- Rubber matting on concrete base under swings and the base of slides. Surface to be level with wood chips.
- When possible, locate manhole covers and cleanouts out of non-paved play areas. Provide mow strips around any manhole covers or cleanouts located in lawn areas. Locate field catch basins at a height to avoid mowing problems.

Paving

- Driveways: Minimum 4-inch thick C-Mix asphalt over engineered base (usually 12 inches crushed rock).
- Parking areas: Minimum 2-1/2" C-Mix asphalt over engineered base (usually 8 inches crushed rock).
- Playgrounds: Same as parking areas, since they have service vehicle use.
- Speed Bumps: Required to be 4 feet wide and ± 3 inches high at the center and constructed with D Mix to allow for smooth transition.
- Curb and Gutters: Use a combination of formed-in-place curbs/gutter and extruded curbs, as appropriate.
- Trash Compactor Slab: Provide a thick concrete apron in front of compactor to accommodate the wheel load imposed by garbage trucks.
- Sidewalks: Provide 6"-thick with reinforcement and expansion joints to accommodate service vehicles. If there is no possibility of use by service vehicles, use typical 3-1/2-inch slabs. Provide sleeves for irrigation and record locations on record drawings.
- Slope to Drain: Slope concrete and asphalt areas and walks to drain, with 1/4" per foot preferred.
- Provide paving outside all exit doors and connect to walk system.

Landscape and Planting

- Provide areas of lawn and planting. Avoid unplanted areas of bark-o-mulch.
- Planting beds to be low maintenance and of manageable size.
- Design consistent with the District's no-chemical policy.
- For planting areas in paving, provide containment curb and fill with fertile loam, not ball field loam.
- Locate trees sufficient distance from buildings to avoid accumulation of needles or leaves on roofs.
- The following are considered desirable for their appearance and low maintenance:
 - Evergreen Shrubs, South and West exposure: Abelia, Arbutis Unedo, Calluna Vulgarus, Chamaecyparis Pisifer, Chamaecyparis Obtusa, Chamaecyparis Lawsoniana, Cotoneaster Lacteus, Escallonia, Ilex Crenata, Juniperus Chinensis, Nandina Domestica, Pinus Mugho, Pyracantha Lodense or Mohave, Viburnum Davidii or Tinus.
 - Deciduous Shrubs, South and West exposure: Ceanothus, Cornus Stolonifera, Euonmus Alata, Forsythia, Potentilla, Prunus Glandulosa, Rhododendron Exbury Azealea, Viburnum.
 - Evergreen Shrubs, North and East exposure: Aucuba, Daphne Odora, Fatsiz, Ferns, Ilex Crenata, Prunus Laurscerasus Otto Luyken, Rhododendron Azalea, Juniperus Chinensis, Skimmia, Taxus Cuspidata, Viburnum Burkwoodii or Davidii.
 - Deciduous Shrubs, North and East exposure: Hydrangea, Rhododendron Exbury.
 - Evergreen Trees: Abies, Cadrus, Cupressus, Juniper, Picea, Pinus, Pseudotsuga Menziesii, Sequoiadendron, Thuja Plicata, Tsuga.
 - Deciduous Trees: Acer Circinnatum, Acer Ginnala, Acer Palmatum, Acer Plantanoides, Acer Rubram Cercis Canadensis, Carbinus, Cornus Florida, Cornus Nutttallii, ginko Biloba, Liquidambar, Plantanus Acerifoliz, Prunus Blireinanna, Prunus Serrulata, Sorbus Acucuparia, Tilia Cordata.

Exterior features

- Exterior features such as low walls and benches to be as skateboard-proof as possible.
- Provide mow strips at all exterior walls, sign bases, benches or other fixed features.

Fencing

- Visually prominent fencing to be ornamental iron or powder coated chain-link.
- Typical chain-link fencing and fittings to be galvanized iron, powder coated, and as indicated above.
- Include a 4-inch thick by 24"-wide concrete mow strip, centered on the fence and flush with the finish grade. Provide 6-inch thick mow strips at gates and driveways.
- Special attention is called to fence ties and fabric edges. They shall appropriately knuckled and tied back so that there are no protruding sharp edges. Knuckle exposed top and bottom fabric edges.
- Fence ties to be at industry-standard spacing, minimum, and twisted, not looped.

Irrigation

- Provide complete automatic irrigation system. Controllers to be Rain Bird "Maxicom".

Lighting

- Include lighting parking and evening and early morning use and for security
- Site lighting beam to be controlled so that it does not spill onto adjacent property.
- Outdoor Lighting shall meet City of Eugene Lighting Codes.

Building Envelope

Roofing and Flashing

- Long-lasting, low maintenance roofing and flashing (75-year target).
- Avoid or minimize flat or low-slope roofs. District preference is for none.
- District standard for flat roofs is base plus 4 plies and cap sheet. JM 5GNC.
- Flashing to be pre-finished in standard colors.
- All scupper pans to be stainless steel.
- Parapets and other concealed walls to be sheet metal.
- Parapets to be covered with pre-finished metal flashing.
- Use only S-lock reglets.
- Exposed downspouts to be Schedule 80 or heavier, sunlight-resistant ABS.

Waterproofing

- Provide perimeter drainage at all below grade concrete. Pay special attention to preventing water intrusion.

Walls

- Use durable and long-lasting materials.
- Metal siding to be used above eight feet, only.
- Select materials that allow for easy removal of graffiti.
- Avoid details that depend on caulking for resistance to water infiltration.
- EIFS is not an acceptable material choice.

Doors and Windows

- All exterior doors and frames to be hollow metal, galvanized, with fully welded top capso on doors. Doors to be 16 gauge and frames to be 14 gauge.
- Windows to be low maintenance with glass that's readily available for replacement.

Interior Materials and Finishes

Doors and Windows

- Interior door frames are to be minimum 16 gage hollow metal.
- Interior doors to be 1-3/4-inch solid wood-staved core with natural finish.
- Full-opening, low profile fire doors at building area separations.

Door Hardware

- Keyed by Owner to District's existing Schlage system.
- All hardware coming into user contact to be 630 finish (32D) or 626 (26D) where 630 is not available.
- Use the following District Standard items:
 - Locksets: Schlage "Rhodes" with D93PD function on all classroom doors.
 - Exit Devices: PHI 1102x17, typically for non-fire-rated doors. Use lever handles only when absolutely necessary for proper operation. Use 1103x17 with cylinder on only one door of an entrance.
 - Closers: LCN 4010/4110DEL.
 - Flush bolts: For inactive leaves of door pairs without exit devices, use Ives or Glynn-Johnson automatic flush bolts with Ives 900-style coordinators, including filler tubes.
 - Exit Devices for Card Access Security Doors: PHI SS-ELR-1103-17US32D and PHI ELR-152-BT Power Supply; Von Duprin EPT-1024 Electric Power Transfer.
- Include Magnetic hold-opens at all fire doors and provide backing in wall.

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Middle Schools

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Glazing

- Use tempered or laminated glass at all non-fire-rated openings.
- For 20-minute fire-rated doors, use “Fireglass 20” or similar.
- For fire-rated windows and fire-rated doors exceeding 20-minutes, use “Firelite Plus”.
- Wire glass is not acceptable at any location.

Rest Rooms

- Toilet partitions to be textured stainless steel or solid plastic.
- Electric hand dryers in all rest rooms in lieu of paper towels.
- Ceramic tile floors and wainscots, as a minimum.

Floors

- Carpet in selected classroom, library and office areas only.
- Current District standard carpet is Collins & Aikman “Explorer” with “Powerbond cushion RS backing”.
- Consider colored and finished concrete in public areas, if cracking can be controlled and/or managed.
- Carefully detail interior slabs when they pass over foundation walls to allow for differential settlement.
- Assume that concrete slabs will have relatively high moisture content in the selection of resilient flooring. Avoid sheet goods.
- Rubber base to be 4-inch, installed in continuous lengths with pre-molded outside corners, butted interior corners.
- Quarry tile floor and base in Kitchen.
- Gymnasium floor to be maple on wood sleepers. Provide with Moisturecure Urethane finish.
- Provide “walk-off” matting inside all exterior doors. Minimum nine feet at major entrances.

Walls

- Consider both durability and appearance in public areas. Avoid an institutional appearance.
- Provide wear-resistant wainscots in traffic areas.
- Provide backing for all wall mounted equipment, hardware, door stops, etc.
- Veneer plaster finish at all drywall locations.

Painting

- All interior paint to be semi-gloss latex enamel.

Ceilings

- Select ceiling materials to suit both acoustical and abuse requirements. Tectum is preferred in high-abuse areas.
- Acoustical ceilings shall be accessible whenever possible. Provide access doors at equipment locations if ceiling is not fully accessible.
- Concealed Z-spline is not acceptable system.

Cabinetwork

- All cabinets to be constructed of plywood with natural finish faces. No particleboard or plastic laminate faced cabinets.

Acoustics

- Use an acoustical consultant to determine appropriate measures for sound control in public spaces. Provide this for the library, music room, cafeteria and gymnasium, as a minimum.

Window Coverings

- Include mini-blinds for interior and exterior windows in all occupied spaces.

Specialties

- Room identification with 8" x 8" plastic plaques beside the door. All room identification signs to be ADA-compliant with standard Braille text. Do not provide signs with teacher's names or other information that will rapidly be out of date.
- Include major signage to suit the design of the building.
- Provide chalk or dry market boards as directed by the Design Committee.

Equipment

- Kiln available for student and staff use, vented to the exterior.
- Television/VCR mounts: Da-Lite WMY-2134, or comparable.
- Dishwasher, garbage disposal and instant-hot water dispenser in staff room.

Service and custodial areas

- Washer and dryer, commercial-grade.
- Walled and fenced storage for trash and recycling.

-
- Trash compactor located in walled area near kitchen service area. Include concrete pad for truck and easy access.
 - Ceramic tile or FRP surface on walls behind and beside slop sinks.

Elevators

- Provide a keypad-operated elevator meeting accessibility requirements if the school is more than one storey.
- Cab interior to be textured stainless steel with a solid, not lay-in ceiling.

Mechanical Systems and Controls

General

- HVAC system to include both economizer and mechanical cooling.
- Design to meet high performance school standards. Design instructional spaces for NC-30, noise criteria.
- Design should integrate HVAC system with the building envelope and lighting system.
- Equipment should be selected that is no larger than necessary to satisfy the calculated load.
- Design calculations should be consistent with 2001 ASRAE Handbook—Fundamentals. Assumptions on outside air ventilation, occupant loads, envelope loads and lighting loads must comply with UBC requirements.
- For ventilation, design a hybrid system utilizing both natural and mechanical ventilation, providing appropriate indoor air quality can be maintained. Outside air must be filtered and preheated to a minimum temperature if introduced directly into occupied space.
- Commissioning of the mechanical system is required. This should start at the beginning and continue throughout the construction and into the occupancy period.
- All maintenance spaces should be easily accessible, have adequate light, provide space for storage of extra sets of filters and be within the building thermal envelope so that all piping will be protected from freezing. Mechanical spaces above corridors should have cable trays to accommodate all low-voltage wiring.
- Vertical ladders are not acceptable for maintenance access. Ships ladders or stairs are preferred.
- Room numbers and tag numbers on drawings and schedules should be coordinated with the District for consistency and future reference. Coordinate with naming conventions developed for DDC controllers for the HVAC System. Indicate final numbers on Record Documents.
- Avoid heating equipment that is exposed to weather.

Air Distribution and Ventilation

- Locate outside air intakes to avoid pollution from sources such as parking lots, roadways and dumpsters. Intakes should be located so that air is drawn from areas that are shaded during warm months.
- Air distribution system for the classrooms would ideally consist of supply air introduced into the space noiselessly at multiple points around the perimeter of the room, near the floor. In a heating mode, the return would be at a low location. In a cooling mode the return air or exhaust outlet would ideally be located in the highest part of the ceiling and near the center of the room. If supply air is introduced high and a single return is used, located return near floor level.
- Ductwork should be sheet metal with insulated liner that has an inside surface that is smooth, cleanable, and does not allow insulation fibers to enter the air stream. Alternatively, provide externally-insulated supply ductwork with sound traps on supply and return at fan units. Flexduct less than 48" may be used to align and connect sheet metal ductwork to grilles in suspended grid ceilings if carefully installed with no bends other than alignment offset. Balancing dampers should be heavy-duty locking quadrant type.
- Fan systems should be located out of the instructional space for both sound-attenuation and maintenance. Good access to change filters and perform other maintenance is important. Piping and ductwork should be routed at least 6'-8" above access walkways, but low enough to access dampers, valves, and other components with a six-foot stepladder.
- Fan room should allow for removal of coils and shafts without impacting structure.
- Three fan systems have been identified as preferred options:
 - Option 1: Single-zone fan coil units with mixed air sections
 - Option 2: Single-zone ground-coupled heat pump units with mixed air sections
 - Option 3: Central VAV system
 - Unique Applications:
 - Office areas, staff rooms, and other spaces available for year-round occupancy may be served by independent systems not requiring plant operation. These may be rooftop gas-packs, preferably with two-stage heating and cooling, or ground-coupled heat pump units. Stand-alone programmable thermostats shall be avoided, if possible. If equipment is not available any other way, they should be capable of automatic setback during school holidays via an external source such as a central building DDC system.
 - System controls should be zoned so that dedicated HVAC systems serving areas such as gymnasiums, cafeterias, media centers, and other areas that may have extended hours of use, can be operated independently for after-hours and weekend activities. Coordinate HVAC system zoning with general building zoning.

-
- Computer labs and other areas with high internal gains should have dedicated exhaust systems, to collect and exhaust heat near the source. Coordinate to operate with the main HVAC system during cooling mode.
 - Entrance areas at hallways and lobbies, may be conditioned by convectors, baseboard units.
 - Kitchen to have special ventilation and fire protection systems as required by NFPA.

Heating and Cooling Plants:

- Hydronic boilers and distribution systems are preferred. Avoid steam systems. Provide multiple boilers, preferably condensing-type, natural gas. 2nd boiler may be dual fuel (natural gas and #2 oil), standard efficiency.
- Design central chilled water plant that can allow for future installation of a thermal energy storage system or other peak electric demand reducing measures.
- Plant for Option 1 may be 2-pipe system if calculations show economizer cooling will satisfy all cooling loads up to outside air temp where heating loads become negligible.
- Plant for Option 2 shall consist of well-field, pumps, and shall include piping tees and space in pump room for back-up condensing gas-fired boiler. If aquifer is adequate at site, well field may be replaced by extraction and re-injection wells, pump, and plate heat exchanger.
- Boiler rooms to have double 36" doors, as a minimum.
- For further details related to heating and ventilating systems, see Guide Specifications prepared by Gary Heldt, District Engineer.

Controls

- HVAC and lighting occupancy sensor controls to be integrated in the energy management system.
- CO2 Sensors to be used in assembly areas to measure the concentrations of carbon dioxide and vary the volume of outside air to keep the levels with acceptable limits.
- DDC controls to be used for all system components. The District is currently investigating options for standardizing DDC controls and a uniform building operator interface. The intent is to standardize the user interface in both new and existing schools. Specific guidelines for controls will be developed in the near future and made available to the design team.
- For single-zone fan coil units with mixed air sections, DDC controls should include digital fan on/off, analog or floating-point damper, heating valve, cooling valve (if not 2-pipe system) operation. Include space temperature sensors with after-hours override push button switch, discharge air temperature sensor, digital fan proof sensor, auto-reset freeze-stat with digital status indication. Basic control scheme shall be ASHRAE Cycle II control, except that separate heating and cooling set points shall be used to provide an adjustable dead-band

between the point when the heating valve is fully closed and first-stage (economizer) cooling. Second-stage cooling (mechanical) shall occur beyond throttling range of first-stage (economizer) cooling. Economizer lockout when outside air enthalpy is greater than return air enthalpy. Provide for occupant control of set points within the district approved temperature range via either space sensor slider adjustment or via building operators site-based workstation.

- For single-zone heat pump units with mixed air sections, DDC controls should include digital fan on/off, analog or floating-point damper operation, digital activation of heating and mechanical cooling mode, space temperature sensor with after-hours override push button switch. Include discharge air temperature sensor, digital fan proof sensor, and monitoring of basic refrigeration safety/limit controls. Basic control scheme to be ASHRAE Cycle II control, except that separate heating and cooling set points shall be used to provide an adjustable dead-band between the point when the heating valve is fully closed and first-stage cooling (the mixed air dampers move beyond minimum position toward full outside air). Second-stage cooling (mechanical) shall occur beyond throttling range of first-stage (economizer) cooling, and shall activate economizer lockout when outside air enthalpy is greater than return air enthalpy. Provide for occupant control of set points within the district approved temperature range via either space sensor slider adjustment or via building operators site-based workstation.
- For central VAV systems, DDC controls for the main fan unit to include standard I/O points, including inputs for freeze-stat status, fan proof, and filter pressure drop. Supply fan speed control loop to maintain static pressure at set point. Static pressure set point to be reset downward when system is primarily in heating mode. Return fan speed to either track supply fan with offset. Minimum outside air damper to vary with supply fan speed to maintain appropriate percent of outside air. Mixed air damper control loop to maintain minimum outside air and/or mixed air set point required for cooling. Mixed-air cooling set point reset based on degree of largest offset between space temperature and cooling set point. Optimal start to achieve morning warm up or cool down to appropriately position mixed air dampers to full recirculation or full outside air. Provide for occupant control of set points within the district approved temperature range via either space sensor slider adjustment or via building operators site-based workstation.

Plumbing

Piping

- Piping to be routed in accessible ceilings, paces, chases, and attics. Below slab supply piping should be avoided. All piping to be protected from freezing.
- Waste piping serving science wing lab stations to be acid resistant to point of connection to waste mains.

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- Piping materials to be corrosion-free and durable, such as Type-L copper inside and Schedule 80 PVC outside. Size to accommodate possible building expansion
 - Isolation valves installed on every line to allow isolation of each classroom, gang rest rooms, and building sections. Valves to be located in accessible locations or behind access doors. A diagram of piping layout and valve locations should be laminated and mounted in each custodial room.
 - Coordinate routing and supports for plumbing piping, heating and chilled water piping and fire sprinkler piping whenever possible.
 - Provide a minimum of 6'-8" clearance below all piping in maintenance areas, walkways, and routine maintenance areas.
 - Insulate all piping, including branch lines, fittings, and valve bodies. Use inserts of same diameter as pipe insulation at piping supports.
 - Label all piping according to standard labeling practices. Label valves as normally open or closed. Numbering of valves is not necessary.
 - Chases, adequate for service access, to be provided between back-to-back rest rooms.

Plumbing fixtures should meet the following guidelines:

- Water closets, wall-mounted, similar to Kohler Kingston with Sloan Royal Optima sensor-operated flushometer.
- Urinals, wall-hung, with strainers, similar to Kohler Bardon with sensor-operated flushometer.
- Lavatories in public and staff rest rooms to have sensor-activated faucets. Lavatories shall be wall-mounted, similar to Kohler Kingston with Sloan ETF-600 electronic faucet. Counter-mount similar to Kohler Caxton, under-counter-mount with Sloan ETF-600 electronic faucet. Use grid strainer. Offset drain, to meet ADA requirements. Do not include integrated soap dispensers.
- All public rest rooms to have hose bibs and floor drains. Floors to have positive slope to the drains.
- All Lavatories, drinking fountains, and one water-closet in each rest room, to meet ADA requirements.
- Sinks with fountain bubblers in each classroom.
- Freeze-proof hose bibs at regular intervals around the building, each with an accessible isolation valve.
- Service sinks in custodial closets serving 15,000 square feet of building. Sink to have chip-proof rim with faucet mounted high enough for filling water buckets.

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- Drinking fountains located adjacent to rest rooms, gymnasium and exterior play areas. Frost-proof and vandal-proof at exterior locations.
 - Kitchens to have adequate floor drains, floor sinks, and code-required grease traps. Locate grease traps for easy service, not under counters, but out of standing areas.
 - Locker rooms to have showers, heavy institutional grade, such as Acorn fixtures.

Hot Water

- Hot Water System to be independent of space heating system. Multiple units under 200MBH preferred.
- Provide 110° F water to all fixtures requiring hot water, 140-150° F water to dishwasher and booster heater.
- Recirculation system to include circuit-setters to balance branches, a recirculation pump with check valve and controlled by the building energy management system. System to provide for recirculation when no hot water is being used. May recirculate through cold inlet of tempering valve.

Electrical Systems

Electrical Distribution

- Switchboards
 - Installed on reinforced concrete housekeeping pads; minimum 4-inch height.
 - Digital solid-state trip units; field programmable; information viewed on integral LCD display; information provided: demand/peak demand, 3-phase amp metering, true rms volt metering, frequency, trip operations counter, trip information (over-current faults, fault pickup, type of fault, magnitude of the fault current and the phase the fault occurred on); protective relays including: current and voltage unbalance, over-voltage, under-voltage, power reversal; remote communication capable (TCPIP compatible).
 - Integral TVSS Protection (unit to be manufactured and factory installed by the manufacturer of the switchboard).
 - Future capacity allowance (minimum 25%), including both bussing and breaker space.
 - Self-supporting structure independent of wall supports.
- Panelboards
 - Branch breakers connection to bus: bolt-on type.
 - Door-in-door construction.
 - Main breaker for every panelboard.
 - Copper bussing only.
 - Future capacity allowance (minimum 25%), including both bussing and breaker space.

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- TVSS equipment shall be rated for Category B location, 2500 joules minimum.
 - No feed-through panelboards allowed.
 - System Voltage
 - 480Y/277V.
 - 208Y/120V through transformer.

Wires and Cables

- Feeders
 - Conductors to be copper only.
- Branch circuits:
 - Conductors to be stranded wire only; insulation THHN/THWN.

Raceways

- Conduit, tubing, and flexible conduit shall not be installed on the surface of finished spaces except in mechanical and custodial equipment rooms.
- Types AC and MC Cable shall only be permitted as a factory assembled luminaire 'whip' where outlet boxes are located not more than 6 feet from the luminaire. It shall not be permitted elsewhere.
- Non-metallic permitted only in below-grade installations.

Pull, Outlet, and Junction Boxes

- Non-metallic permitted only in below-grade installations.

Wiring Devices

- Receptacles shall be Industry Class 5362.
- Snap Switches shall be Specification Grade minimum 20-ampere rated.

Motor Starters

- Motor Starters shall have integral phase loss protection.

Electrical Identification

- Self-laminating machine made thermal transfer labels on all wiring.
- Mechanically mounted phenolic engraved labeling on all switchboards, panelboards, cabinets and enclosures, motor starters, motor and circuit disconnects.

Standby Generation System

- Fuel source shall be skid mounted diesel tanks capable of minimum of 36 hour run-time under 80% load.

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- There shall be two transfer switches (one exclusively for the emergency egress lighting system and one for ancillary emergency systems, i.e. intercom, data, voice, fire alarm, etc.).
 - The transfer switch shall provide capabilities for maintenance/bypass operation to allow maintaining and removal of the transfer switch mechanism without disconnection from the normal power supply.
 - The engine-generator shall be sized for actual load plus 25%. The basis is for no greater than 20% voltage dip on startup.
 - All engine-generator controls shall be remotely mounted (not on the engine-generator and in close proximity to the engine-generator). Control and adjustment switches shall include the following: run/off/auto switch; reset/lamp-test/panel switch; voltage adjust potentiometer; frequency adjust potentiometer; emergency stop switch; individual phase ampere and voltage readout.
 - Alarm and status display shall be remotely mounted (not on the engine-generator and in close proximity to the engine-generator) and shall include incandescent alarm and status lamps for the following functions: run; pre low oil pressure; pre high engine temperature; low oil pressure; high engine temperature; overspeed; overcrank; switch off – run/off/auto control switch is not in the auto position; fault 1 – generic; fault 2 – generic; low engine temperature; low fuel; low coolant level; over/under voltage alarm; over/under frequency alarm; ground fault alarm; time delay start/stop.
 - A second remote annunciator shall be installed in the custodial office.
 - The battery charger status shall be monitored in a remote mounted enclosure (not on the engine-generator) next to the engine generator-alarm and status display.
 - Engine-generator shall be installed in a roofed, four-sided masonry block structure with an ornamental iron access gate.

Branch Circuits

- Minimum of three 20-ampere branch circuits dedicated for receptacle general-purpose use in each classroom. Minimum spacing of single duplex wiring devices along any wall surface of a classroom shall be 48" between receptacles.
- Computer Labs shall have a minimum of eight 20-ampere branch circuits dedicated for computer and computer peripheral use. Maximum spacing of single duplex wiring devices along any wall surface shall be 36" between receptacles. An under or in-floor raceway system shall also be installed. The under or in-floor raceway system shall have a minimum of two compartments (one for Class 1 wiring and one for Class 2 and 3 wiring). The bending radiuses for the raceway shall meet the requirements for fiber optics. The under or in-floor raceway shall be installed with a maximum of 36" from the centerline of each horizontal raceway run.

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- Libraries shall have a minimum of ten 20-ampere branch circuits dedicated for computer and computer peripheral use. Maximum spacing of single duplex wiring devices along any wall surface shall be 48" between receptacles. An under or in-floor raceway system shall also be installed. The underfloor raceway system shall have a minimum of two compartments (one for Class 1 wiring and one for Class 2 and 3 wiring). The bending radiuses for the raceway shall meet the requirements for fiber optics. The under or in-floor raceway shall be installed with a maximum of 36" from the centerline of each horizontal raceway run.
 - In addition to the general purpose branch circuiting in the Gymnasiums, a separate dedicated 3-pole, 100-ampere circuit breaker with a neutral bar and separate enclosure shall be installed at a central location within the Gymnasium.

Lighting Systems

Luminaire Type

- In any spaces with a finished ceiling height of 8 feet or more except mechanical, storage, and custodial, T-8 cable-hung, steel, direct/indirect parabolic.
- Mechanical, storage, and custodial spaces shall be lensed T-8 utility type.
- Exterior exit ways lighted by CFL type on standby emergency generation system.
- Exterior building mounted site luminaires shall be pulse start metal halide.
- Pole mounted and/or bollard style site luminaries shall be pulse start metal halide.

Lamp Type

- Metal Halide Pulse Start: GE, Phillips, Osram/Sylvania.
- T-8, TCLP compliant, 3500K, minimum 85 CRI: GE, Phillips, Osram/Sylvania.
- Compact Fluorescent, TCLP compliant, 3500K, minimum 85 CRI: GE, Phillips, Osram/Sylvania. Keep lamp types at a minimum.
- Utilize low mercury, TCLP compliant, ecologic lamps where available.
- All lamps of each type and color shall be by the same manufacturer.
- Provide extra lamps of all types, based on initial lamping quantity of 10%. Where a fraction occurs, round up to the next larger integer.

Ballast Type

- Programmed Rapid Start Dimming (range 5% to 100%), T-5 High Output, no more than 10% THD, no less than a .98 power factor.
- High Frequency Solid State Electronic Rapid Start T-8, no more than 10% THD, no less than .98 power factor.

Lighting Controls

- Dual Technology Motion Sensors in classrooms and offices, 15 minute delay-off programming capable.
- Daylight harvesting light sensors with dimming (range 5% to 100%) in classrooms and offices, after an initial 30-day occupied operational period, contractor to return and re- program each space.
- All exterior lighting inclusive of building mounted site lighting and pole and/or bollard lighting shall be controlled from a single control point. Controller shall be 100% electronic, TC/PIP compliant, astronomical capability, with user-friendly windows interface. Additionally, a spring wound 12-hour by-pass timer shall be installed as a manual override.
- All lighting in places of assembly and in hallways and corridors shall be controlled from a single control point. Controller shall be 100% electronic, TC/PIP compliant, with user-friendly windows interface.

Security System

Electronic Intrusion Detection System

- Door contacts monitor all exterior doors (concealed double-pole magnetic contacts, Sentrol 1076D); all access control doors (doors with card reader access) shall be contacted using concealed double-pole contacts (Sentrol 1076D).
- Dual technology sensors (ultrasonic and passive infrared; Detection Systems DS-970 TriTech); coverage throughout building inclusive of hallways, computer labs, main office area, etc.).
- Keypads permit access and arming (access card compatible).
- DMP product per School Board Exemption.
 - DMP XR200-485 Control Panel.
 - DMP 350 Grey Enclosure.
 - DMP 320 Transformer.
 - Two 7 amp-hour batteries.
 - DMP 460 Interface Adapter.
 - DMP 462 FM Modem Card.
 - DMP 893A Dual Phone Card.
 - DMP 306 Tamper Harness.
 - DMP 318 Dual Battery Harness.
 - Sentrol 3025T Tamper Switch.
 - Four DMP 793-52 Keypads per Elementary School.

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- Auxiliary Power Supply (Altronix # SMP7PM-CTX) located adjacent to control panel.
 - Zone Expansion utilizing DMP 714-18T Expansion Modules mounted inside minimum 4 11/16" electrical enclosure.
 - Minimum of eight Ademco 747F sirens and four DMP 716 output expanders.
 - Two RJ31X Phone Jacks installed adjacent to the control panel and wired to the KSU.

Card Access

- Proximity readers (located at 10 to 15 doors per Middle School); use District Standard HID HU-5355AGK09; cover with lexan vandal cover.
- Use District Standard Electric Latch Retraction Exit Device (use District Standard PHI ES-ELR-1103-US32D and Power Supply PHI ELR-152-BT) at each proximity reader door location.
- Use District Standard Lenel LNL-1320 Dual Reader Interface Module at each proximity door location.
- Use District Standard Lenel LNL-2000 Intelligent Controller for Card Access System.
- Request-to-exit integration at each proximity door location.
- HID ISO 30 Cards.
- Credential creation and production system to be integrated with the cardholder management system.
- Utilization of a single database, under one environment, for both access control and photo imaging functionality.
- Single, unified 32-bit source code set for all system modules.
- ODBC compliant.
- Support for any industry standard network protocol and topology.
- Windows graphical user interface.
- Lenel product for card access management per School Board Exemption.

Camera Surveillance

- Ten to fourteen high-resolution color cameras per Middle School.
- Use District Standard Kalatel DVMR-E 16CT-320 Digital video recorder.
- All cameras to be wired to digital video recorder using UTP wiring.
- Digital Video Recorder to be tied to School District's Intranet.

Digital Intercom/Clock Systems

Intercom Controller

- Telecor XL per School Board Exemption.
- Provide station capacity for full system as designed plus 25% spare.
- Install two each administrative telephones, location to be determined by the School District.
- Unit to be mounted in a secure portable rack, Middle Atlantic Products, Inc., PTRK-21 Series or approved.
- UPS Rack Mount Battery Backup; APC Smart-UPS 1400 Rack-Mount 2U, w/Ethernet Card.
- Console Display Unit shall be installed in the office area.
- Provide 4-gang, recessed box and red handle emergency switches and stainless steel cover plate. Engrave cover plate with "Exit Building", "Secure Rooms", "Earthquake", and "All Clear" in red lettering. Verify mounting location and height with School District. Provide circuitry to intercom controller and program as necessary.
- Install a 4 pair Cat-5 cable in raceway between Intercom Controller and Telephone KSU. Program KSU and six existing telephone handsets for access to Intercom Controller. School District to determine location of handsets.
- Provide a time control system as an integral part of the Telecor XL communications system.
- All exterior horns shall be on separate common zone(s); all hallways shall be on separate common zone(s); all bathrooms shall be on separate common zone(s); classrooms, offices, conference rooms, boiler room, custodial office, kitchen, places of assembly shall have individual zones and call switches.

Clock and Program (Class Scheduling) System

- Provide complete clock and program (class scheduling) system integrated with Telecor XL system (use District Standard Telecor 2400 Master Clock); provide telephone jack for RS 232 Interface.
- Clocks shall be installed in all offices, classrooms, conference rooms, front office, hallways, boiler room, custodial office, places of assembly, kitchen.
- Provide programming for class scheduling as per School District.
- Indicating clocks shall be minimum 12" diameter for classrooms and offices; 15" indicating clocks for hallways and places of assembly including gyms. Clocks shall also be installed in boiler room and main office area. Clock construction shall be round steel case with glass crystal. One rpm Synchron brand motor and corrective coil. Synchronous, 3-wire with sweep second hand. Lathem SS, or approved.

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- Wire Guards: 9 gauge wire frame, white vinyl absite coated. Install in places of assembly, gymnasiums, boiler room, and where probable damage may be indicated.

Speaker, Standard

- Speaker shall be 8-inch, 5 watts normal power rating; full frequency response for voice and music; talk back capabilities; integral transformer 70/25 volt line input with 1/4, 1/2, 1, 2, and 4 watt output taps, Telecor Soundolier G series or approved.
- Baffle shall be round, flat, heavy gauge steel with white enamel finish, Soundolier 51-8 or approved equal; flush round, flat, heavy gauge steel with white enamel finish, Soundolier 51-8 or approved equal; surface enclosure shall be square, white enamel metal for corridors; surface enclosure shall be particle board sloping wall baffle, light oak finish (classroom/office).
- Loudspeaker shall be similar to speaker but with high efficiency horn driver and enclosure, weather resistant, with wire guard; Soundolier AP-15T series or approved equal.

Call Switches

- Commercial grade, recessed push button, momentary contact switch. Brushed stainless steel faceplate engraved with "Push-to-Talk".

Wiring

- No. 22 AWG Minimum, solid, shielded, color-coded pairs, overall PVC jacket. Exposed wiring shall be plenum rated with white jacket or other color approved by Owner.
- Provide system wiring per manufacturers' recommendations.

Wire Guards

- Restroom Speakers shall be 12" x 12" x 5"; 6 gauge wire frame; 8 gauge wire for 2" openings; white vinyl absite dip coated; 2" square openings.
- Exterior and Interior Horns shall be 15" x 15" x 13 1/2"; 6 gauge wire frame; 8 gauge wire for 2" openings; white vinyl absite dip coated; 2" square openings.

Volume Control

- Commercial grade monaural attenuator with attenuation rate of 3 db per step; step level control; rotary switch, brushed stainless steel faceplate; stamped and filled dial scale with skirted black knob; 48" mounting height.

Installation

- All intercom cable shall be routed in separate raceways or separated in cable trays from all other wiring systems with a minimum 12" (305mm) separation.

Places of Assembly Call Stations

- In addition to horns, install in places of assembly call switches at 48" AFF and talk-back speakers directly above the call switch at a height of 96". Provide a protective lexan cover over the call switch (Safety Technology International, Inc., STI #6545) with blue label stating "Lift Cover, Push Button And Talk Into Speaker On Wall ". Install these units in a minimum of two locations per occupied space.

Fire Alarm Systems

Controller

- Fire Control Instruments, Inc., per School Board Exemption.
- 7200 Series Multiprocessor-Based Analog/FCINET/Hard-Wire Fire Alarm Control; CAB-C size; switching power supply; keyboard display unit; SCU; ALU.
- Install three remote KDU Units (one at the front entrance; one in the custodial office; and one location to be determined by Owner).
- FCI FC-5128 Communicator.
- Size cabinet, power supplies, and batteries to accommodate 25% future devices.
- Synchronization for all required appliances.

Initiating Devices

- FCI MS-6 Pull Stations.
- STI Stopper II (Brand) Lexan Pull Station Covers shall be installed with all pull stations.
- FCI ASD-PL Series Analog Addressable Photoelectric Sensor.
- FCI ATD-R Analog Thermal Rate-of-Rise Sensor.
- FCI DH500ACDC Duct Housing, with Auxiliary Relays and ASD-P Analog Photoelectronic Smoke Sensor.
- Audible Devices
- Wheelock AS-24MCW-FR Multi-Candela Audible Strobe (minimum 75 candela).
- Wheelock AH-24WP-R Weatherproof Audible Horn.
- All exterior, restroom, and places of assembly audibles shall be protected with STI 1223 Damage Stoppers.

Final Acceptance Test

- Test the system according to the procedures outlined in NFPA 72.
- If any deficiencies are corrected, retest entire system.

Voice, Data, and CATV Network Ed Spec

General

Do all work in accordance with the current standards published in

- UBC (Oregon Edition)
- NEC
- EIA/TIA 568 and 569
- NFPA
- FCC Parts 68 and 76

All manufacturers' installation instructions shall be followed.

District networks shall be designed to comply with the Americans with Disabilities Act.

The system shall include Avaya Systimax components for all twisted pair cable, connectors, and terminations and shall include the Avaya 20-year system warranty on all components as provided by the manufacturer.

All fiber optic cable shall be Lucent with Avaya terminations and connectors.

Building Entrance

The Building Entrance (BE) is the interconnection point between the campus voice and data systems as well as the point-of-presence for franchised utilities (i.e., the local telephone and cable TV companies). The BE shall provide space for wall-mounted and freestanding equipment.

Minimum count and sizes of conduits for new construction shall consist of

- 2– 4" conduits for Telecommunication Providers
- 2– 2" conduits for CATV Providers
- 2– 4" conduits for Owner, and
- 2– 2" conduits for future use

for each pathway entering the building.

Install Maxcell brand fabric innerduct to capacity in each conduit.

The BE shall be designed exclusively for communication services use and shall not be shared with other systems (including electrical power, fire alarm distribution, or security system equipment, storage, or custodial services). Major plumbing, electrical, and mechanical distribution systems must be routed outside the BE.

The BE shall be designed to accommodate the primary protection and grounding point for all metallic conductors entering the building.

Service Providers: Provision rack and/or wall for each of the following: data, voice, and CATV services.

CIS Systems: At a minimum, provision wall space for inter-building distribution terminations.

HVAC Equipment: Provide a separate space to house HVAC equipment required to meet 24/7 operational requirements. Condenser cooling water and refrigerant piping shall be routed outside the BE.

In addition, the BE may be provisioned with facilities typically found in MDFs and IDFs. If the BE also contains MDF or IDF facilities, then these spaces shall be separately provisioned within the BE per the respective design criteria for these types of rooms.

Distribution from the BE to the MDF shall consist of cable trays and 4-inch conduits. The cable fill capacity of the cable tray and conduit shall at least be equivalent to the capacity of the backbone system.

When cable tray is used to connect the BE to the backbone system(s), specify a separate tray for any station cable or feeder cable.

Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF) Rooms

Rooms shall be designed for EXCLUSIVE use of CIS-administered communication systems and shall not be shared with departmental groups, other support groups, or equipment not serving the room (including electrical power, fire alarm distribution, or security system equipment, storage or custodial services). Major plumbing, electrical, and ventilation distribution systems must be routed outside the room.

Provide access directly off a public hallway. Service personnel should never need to enter offices, storerooms, restrooms, or other spaces to gain access to the room.

Install ACX Douglas fir plywood backboards on ALL walls, extending from 1-foot AFF to 9-feet AFF and using standard 3/4-inch by 4-foot by 8-foot sheets.

Backboards shall have two coats of fire-resistant matte white paint on all surfaces.

Provide a 208Y/120V panel board rated at 100 amps fed from the building standby power system. It shall have an equipment ground bus with a dedicated equipment ground conductor back to service ground bus. Label faceplates with circuit identification number.

Provide a communications equipment ground system and bond it to the building electrode grounding system.

Rooms must be secure and environmentally clean. Seal the floor to eliminate dust and static electricity charges.

Rooms have year-round, 24/7 HVAC requirements independent from the building's central needs. Provide dedicated controls within each room. A separate system may be required. For design purposes assume a continuous 8000 BTU heat load for the MDF and 3500 BTU heat load for each IDF.

Maintain the room temperature in the range 64-75 degrees F.
All IDF rooms shall be located so that the maximum station cable length from the IDF Room to all outlet locations shall not exceed 295 feet (90 meters) termination-to-termination of all horizontal cables.

Route the equipment grounding system from the MDF Room through each IDF Room with a termination on the ground bus bar in each Room.

Horizontal Distribution System - Cable Trays, Conduits, and Outlet Boxes

Install a cable tray system on every floor of the building to provide a horizontal pathway system between the nearest IDF Room and the individual communications outlets in each room.

Size communications raceway for initial fill capacity of one-half the maximum capacity based on the recommendations in EIA/TIA 569.

Each telecommunication outlet box requires a dedicated conduit feed.

Provide every assignable room with a minimum of two standard communications outlets.

Provide each instructional space a minimum of one additional communication outlet for wireless network requirements.

Provide additional outlets in office areas, meeting rooms, and hallways to provide complete coverage for wireless access.

Provide infrastructure for building systems that will use CIS-managed network services. This includes

- Elevator telephones
- Emergency telephone systems
- Public telephones
- Wireless Access
- CCTV
- Card access control
- Building Automation System
- Lighting control
- Equipment monitoring systems
- Cash registers

Communication outlets for wireless access shall be installed 6 inches below the finished ceiling.

For wall-mounted phone boxes, locate highest-operable parts essential to basic operation of the phone unit no higher than 48-inches AFF.

For typical “desk” locations, run a 1-inch conduit from the cable tray (or nearest IDF Room) to a standard 4-inch square by 2.5-inch deep electrical box with a single gang mudring.

For wall-mounted phone locations, run a 3/4-inch conduit from the cable tray (or nearest IDF Room) to a standard 2-inch by 4-inch by 2.5-inch electrical box with single gang mudring.

Where multimedia outlets require dedicated infrastructure, specify a minimum 1.5-inch conduit to a 4-inch square by 2.5-inch deep electrical box with a dual gang mudring.

Specify a 3/4-inch dedicated conduit to the nearest cable tray or directly to the nearest IDF Room or MDF Room for security systems (e.g., alarms for monitoring equipment or card access to buildings) and to the MDF Room for communications response systems (e.g. per American Disabilities Act regulations) that require a phone or data connection.

Cable Plant - Installation, Terminations, and Testing

All cable shall be installed in with the appropriate cable jacket that is suitable for the environment in which it is placed.

Label and identify all cables with cable-attached, self-laminating machine-made labels at both ends. Label each outlet device’s faceplate, jack, and corresponding patch panel. Label all 110 block positions and fiber termination blocks.

All cable shall be installed, tested, and verified to meet or exceed all applicable codes and manufacturer's specifications whichever is more stringent shall apply.

Backbone Cabling

Backbone cabling is installed from the BE to the MDF and from the MDF Room to each IDF Room. Cabling consists of

- Category 5, 24-gauge copper unshielded twisted-pair trunk cables for voice
- Optical fiber protected innerduct
- One or more RG6 coaxial cables
- Category 6 24-gauge twisted-pair cable between the MDF and IDFs when distances from MDF to IDF are less than 295 feet (90 meters).

Each backbone cable shall be installed as a continuous length without splices and terminated on the distribution frames in the BE, MDF Room, and appropriate IDF Room.

The design of the voice backbone cable shall include unshielded twisted-pair trunk cables from the BE to the MDF, and from the MDF Room to each IDF Room.

Pair-count for voice backbone cables shall be no less than 25 or no more than 300 pair per sheath.

For data backbone cables, both Single-mode and Multimode Optical Fiber Backbone Cable shall be installed in innerducts from each IDF to the MDF. Twelve strands of single-mode and twelve strands of multimode fiber shall be installed. Innerduct shall be rated for type of installation environments encountered (i.e., riser, plenum, outside plant, etc.).

Single-mode fiber cable shall be 8.3 micron with dual windows. Loss must not exceed 0.35dB/0.22dB per kilometer in at 1310nm/1550nm windows respectively.

Multimode fiber cable shall be 50/125 micron with no more than 3.5dB/1.0dB per kilometer loss at 850/1300nm and must be at least 700 Mhz/Km and 500 Mhz/Km at 850/1300nm respectively.

CATV cable shall be RG6 coaxial, .540-inch cable installed and tested to support frequencies ranging between 5-1000 MHz.

All backbone twisted-pair cable shall be terminated using Category 5 EIA/TIA 568A termination components for voice on 110 IDC punchdown blocks with designation strips and cable management will be provided for each termination block.

Singlemode fiber strands shall be terminated via fusion splicing using SC pigtails installed to manufacturers' specifications.

Multimode fiber cable shall be terminated using ceramic ferrule epoxy or hot melt SC connectors directly connected to the end of each fiber strand.

A backboard and rack layout detail shall be prepared for each BE, MDF, and IDF Room showing the specific number and arrangement of termination hardware required in each BE/MDF/IDF Room.

Horizontal Cabling System

The typical horizontal cabling bundle consists of twisted pair station cables installed from each outlet to the nearest IDF Room.

The maximum cable length from the IDF Room to all outlet locations shall not exceed 295 feet (90 meters) termination-to-termination of all horizontal cables.

All horizontal twisted-pair cables shall be Category 6 for both voice and data.

Horizontal twisted-pair cables shall not be routed through wet locations.

A standard telecommunication outlet consists of three cables, each having an unshielded sheath containing 3 twisted-pair of 24-gauge copper. These station cables support both voice and data services. There shall be

- one (1) sheath of Category 6 for Voice, and
- two (2) sheaths of Category 6 for Data.

The configuration of the jacks in the standard outlet shall position voice jack on the upper left-hand side and data jacks on the right-hand side. Blanks will be provided in all unused openings. Provide an adjacent electrical box for each standard telecommunication outlet.

One or more RG6 coaxial cables shall be required as part of the horizontal CATV system.

Exceptions to installing the standard communication outlet include wall-mounted telephones - one (1) 4-pair cable, elevator telephones - one (1) 4-pair cable, and pay telephones in lobbies.

Other exceptions include special data outlets found in computer lab environments, libraries, computer rooms, or food service areas. Security systems requiring connections for telephone lines generally use one (1) 4-pair cable. Outlets for wireless connections require one (1) 4-pair cable.

Areas with a high density of computers such as labs and libraries shall have a cable installed for each device with additional capacity available for more outlets to be installed in the future.

Voice and data services will each have their own set of patch panels for termination in the MDF and IDFs.

All horizontal twisted-pair cable shall be terminated using Category 6 EIA/TIA 568A termination components for voice and data. Patch panels shall be no larger than 48-ports per panel with cable management for each panel.

For CATV provide pin-type, threaded (5/8") connectors.

Fiber Cable Testing

Perform end-to-end, bi-directional attenuation test for each fiber strand at 850/1300nm for multimode fiber and 1300/1550nm for singlemode fiber. Conduct tests in accordance with EIA/TIA-568-B.3 and with test instrument manufacturers' printed instructions.

Demonstrate that measured link loss does not exceed the "worst case" allowable loss based on EIA/TIA-568.

Where defects are found to be inherent in the fiber, the fiber must be removed and replaced.

Copper Cable Testing

Backbone trunk cables shall be tested for grounds, shorts, continuity, reversals, and transpositions.

Horizontal cables shall be tested in accordance to EIA/TIA-568-B.2 with a test device that meets or exceeds the accuracy for Category 6 wiring standards.

Documentation

Submittals shall be required for the following items:

- Cable
- Backboard layout for all BE, MDF, and IDFs
- Rack layouts including panels and wire management for all racks
- As-built drawings of the complete system

Test results for all cable shall be provided in both electronic and bound hardcopy formats.