Tigard-Tualatin School District

Educational Specifications 2016



By DOWA - IBI Group Architects, Inc. | December, 2016



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Introduction



Introduction



I

This document represents the Educational Specifications for Tigard-Tualatin School District's elementary and middle school construction and/or renovation projects. The purpose of the Educational Specifications document is to align the District's strategic goals, curriculum requirements, and instructional philosophies with facility needs, ensuring that new and renovated elementary and middle school facilities enhance and facilitate effective teaching and learning practices. The Educational Specifications document provides a common foundation for project-specific discussions, supporting parity between school projects while still providing the District with flexibility to adapt certain approaches based on the unique conditions at each school and/or site.

Acknowledgements

Effective school facilities planning is characterized by extensive stakeholder input. The Educational Specifications report is based on the work of the District's Educational Specification Committee. The Educational Specifications Committee met four (4) times during the summer and fall of 2016 to develop the vision and space requirements for future elementary and middle school projects. Tigard-Tualatin School District would like to thank the committee members who contributed to this process.

Ernest Brown, Superintendent

Karen Twain, Assistant Superintendent

Susan Stark Haydon, Director, Community Relations

Phil Wentz, Facilities Manager

Elizabeth Michels, Controller

David Moore, Chief Financial Officer

Deeann Albaugh, Teacher, Templeton Elementary

Jennifer Scypinski, Instructional Technology Specialist

Carla Birkholz, STEM Teacher, Twality Middle School

Leslie Gray, Teacher, Templeton Elementary

Jerry Nihill, Principal, Mary Woodward Elementary

Jamie Kingery, Principal, Tualatin Elementary

Noelle Gorbett, Math/Science/STEM Specialist

Jordan Mills, Teacher on Special Assignment (TOSA), Metzger Elementary



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Project Vision



Project Vision

The work of the Educational Specifications Committee was preceded by a long range facilities planning and visioning process. The development of Tigard-Tualatin's 2016 Long Range Facilities Plan involved the creation of three (3) task forces designated to cover special focus areas related to the District's short and long-term facilities needs. The guiding principles and recommendations developed by Long Range Facilities Planning Committee and its associated task forces provided a foundation and framework for the deliberations of the Educational Specifications Committee. Some of the overarching themes and guiding principles that shaped the development of the Educational Specifications for elementary and middle schools included:[1]

- **Empower Students by Providing Spaces for Active, Hands-on, Self-Directed Learning:** Tomorrow's learners will not be created through passive lecturing. School designs that foster student independence, autonomy and self-directed learning experiences create engaged learners that are equipped for next-generation learning approaches. TTSD schools should provide spaces that support hands-on learning opportunities, such as wet labs, makerspaces, hackerspaces and other unique learning environments.
- **Support Changing Program Needs by Providing Flexible, Adaptable Spaces:** Educational program needs are constantly changing and evolving. Fixed classroom environments constrain teachers' ability to vary their instructional approaches. Future facility improvements should support the goal of creating flexible and adaptable spaces that can be easily and quickly reconfigured to meet changing educational needs.
- **Provide Learning Environments that Support Expanded STEAM Curriculum and Activities across all Grade Levels:** Science, Technology, Engineering, Art and Mathematics (STEAM) spaces are designed with next-generation learners in mind, with an emphasis on experiential and project-based activities. TTSD school facilities should provide instructional spaces that align with the District's STEAM vision and goals. The District should focus on supporting these spaces at all schools to ensure equity across the District, as well as support the alignment of STEAM curriculum across grade levels.



[1] This list is not all-inclusive. Please see the Long Range Facilities Planning Committee and Task Force Reports for the full list.

Project Vision



II

- **Create a Plan for Expanding Early Childhood Education Options within the District:** Public school districts are increasingly extending their services to include early childhood education for pre-k students. TTSD should prepare for this eventuality by creating a plan for expanding pre-k options within the District, which may include an early childhood hub program. Early childhood spaces – including pre-k and kindergarten – should be thoughtfully designed as adaptable, vibrant, and stimulating spaces that support the unique developmental needs of their unique student population.
- **Provide a Secure yet Welcoming Environment to Parents and Visitors:** School buildings should project a welcoming image to parents and community members while still protecting the security of staff and student through effective monitoring, communications, and controlled access. New schools should be designed with community use in mind, with the ability to easily separate public areas from instructional areas after hours.
- **Enhance Supervision through Transparency:** School facilities and sites should enhance supervision by providing natural transparency. Avoid the creation of hidden areas where building users cannot be readily observed by staff.
- **Control Access to School Buildings by Creating a Single Entry Point that is Continuously Monitored by Office Staff:** Access to TTSD elementary school facility should be limited to one (1) main entry point, with all other exterior doors secured. The main entry should be directly visible to staff in the main office, allowing them the ability to deny access to unauthorized visitors. Unique solutions to access control are needed at the District's middle and high schools, where it is inherently difficult to enforce use of a single main entry point.





General Planning Considerations for Elementary and Middle Schools


PRE-K CLASSROOMS
OUTDOOR WELLNESS/ PLAY Area
KINDER CLASSROOMS
SPECIALIST/ RESOURCE
CORE
Staff room + lounge
entry
OFFICE
Staff PARKING
COMMUNITY
GENERAL CLASSROOMS
Library
MEDIA/ TECHNOLOGY
Maker Space + Kitchen
DINING
SPECIALIST/ RESOURCE
SPECIALIST/ RESOURCE
3-5 grades upper
SPECIALIST/ RESOURCE
PERFORMING ARTS Space or Stage
Music Room
parent PARKING
parent drop-off
GENERAL CLASSROOMS
Gym
PE/ ATHLETICS
entry
Community outdoor learning Garden
GENERAL CLASSROOMS
Covered
OUTDOOR WELLNESS/ PLAY Area
entry
learning outdoor learning lab
learning outdoor learning Garden
outdoor learning
outdoor learning
bus drop-off
ELEM. SCHOOL



General Planning Considerations for Elementary and Middle Schools

Tigard-Tualatin School District's elementary and middle schools will support next-generation learning approaches by embodying the following design features:

- **Classrooms organized by Neighborhoods with Collaboration Areas:** Elementary and middle schools will be organized into neighborhoods, each with 4-6 general classrooms, a shared extended learning area or small group room, and a teacher prep/ collaboration room. Neighborhoods will be organized to maximize efficient use of interior spaces while minimizing corridors. Specialized classrooms will be centrally located relative to the neighborhoods to allow easy access to STEAM resources and shared common areas.
- **Purposeful, yet Flexible, Spaces:** Next-generation learning approaches require flexible, agile, varied spaces that accommodate different group sizes and activities. Optimize the balance between formal and informal areas within the facility, achieving an effective ratio of purposeful and flexible spaces. Maximize "found" spaces (such as under stairways) for activity zones or storage. When designing multipurpose spaces, establish a shared understanding of the supported activities, ensuring that these spaces are not later underutilized. Elementary and middle school classrooms should be generously-sized to accommodate easy reconfiguration to support multiple activities. Schools shall provide a robust technological infrastructure to ensure that mobile access, streaming and projection capabilities are supported in instructional, administrative, and social settings.
- **Outdoor Learning Resources:** School sites are discovery-rich environments that engage students and teach important scientific concepts in natural settings. Provide multiple outdoor learning areas in different areas of the site for easy access by classroom neighborhoods. Incorporate overhead (garage-style) doors in commons, multipurpose and/or athletic areas to create an indoor/outdoor connection between spaces. At elementary and middle school sites, include a generous covered play area for socialization, recreation and instruction. Incorporate learning labs with terrarium features to support a variety of STEAM activities.

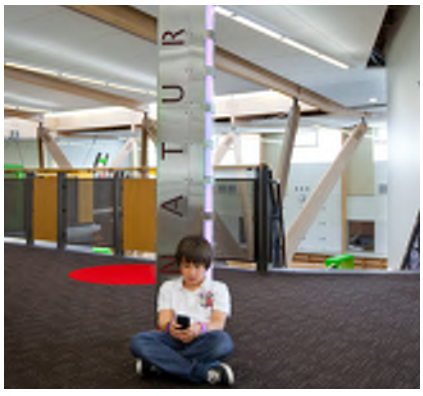


General Planning Considerations for Elementary and Middle Schools



III

- **STEAM-infused Learning Areas:** Provide facilities and resources to support a wide range of STEAM-based activities, including tools, materials, equipment, and technology to support student inquiry and exploration. Elementary and middle schools should include a centrally-located makerspace with adequate storage for student projects. For middle schools, consider designing four (4) general classrooms as “wet labs” that may be used for hands-on STEM activities and/or general instruction, as well as a large, flexible CTE space that could accommodate a wide variety of project-based activities.
- **Open, Light and Transparent Interior Spaces:** Elementary and middle school designs will incorporate high ceilings, ample interior windows, and ample daylighting to create open, light and transparent environments for building users. Install shades and window coverings to allow teachers to control classroom lighting when using projectors.
- **Sustainable Practices as Learning Tools:** Elementary and middle schools will embrace the educational opportunities associated with building operations and resource consumption, using interactive gauges to assess and report real-time data on usage patterns. Such learning tools inspire students to become agents of change and foster lifelong sustainable practices aiming the younger generations.
- **Provide Adequate Space to Support Specialized Instruction:** Schools today are faced with accommodating a growing number of specialized programs requiring dedicated instructional spaces, offices and private meeting rooms. Spaces are needed to support special education, English language learners (ELL), Title I, and other programs. It is important to design elementary and middle school facilities with sufficient specialized classrooms and support areas to meet future needs, ensuring that general classrooms are not coopted for these functions. Integrate SPED classrooms within academic areas to promote inclusion and minimize transition times for students. Consider providing multiple smaller rooms or half-sized classrooms to accommodate different activities and uses.





Changing Role of School Libraries

School libraries are no longer quiet depositories of books overseen by a watchful librarian quick to hush talkative students. Today's libraries are vibrant, dynamic, and flexible learning spaces that engage students in a myriad of learning experiences. These centers of research and inquiry form the heart of a school. They are not infrequently-visited peripheral destinations, but are instead learning hubs that invite daily use by students, staff and community. Printed materials are augmented by a rich array of technological resources, expanding learning opportunities to a global level. Increasingly, library media centers are paired with makerspaces, allowing students to apply research-based theories and concepts to project-based explorations using a variety of tools, materials and resources.

The construction or renovation of a school facility presents an opportunity to transform existing school libraries into dynamic, technologically-connected media centers that support next-generation learning approaches. Tigard-Tualatin's vision for a reimagined school library media center is characterized by the following features:

- **The Library is the Living Room of the School:** The library media center represents the living room of the school – it should be highly visible, accessible and welcoming. Create a synergistic learning hub that sparks curiosity among students. The space should be designed as open to the school, limiting doors or other boundaries to restrict visual or physical access. Envision the library media center as an inspirational area of learning, serving as both a school and community resource.
- **Design the Library as a STEAM-focused Learning Commons that Supports Student Inquiry:** Reimagine the library as a learning commons where access to printed materials is no longer the primary function. The library media center should serve as an extension of the classroom – a launching pad for student inquiry. Design the library media center as a theoretical and physical gateway to STEAM-related explorations, promoting design-thinking and problem-solving skills among students.
- **Include a Variety of Spaces to Support Collaboration as well as Quiet Refuge:** The library media center should accommodate a large variety of activities and group sizes, including both formal and informal spaces for collaboration and sharing (e.g. discussing, presenting, performing, and socializing). Additionally, it is important to provide access to quiet nooks or spaces of refuge for activities requiring concentration or reflection.



General Planning Considerations for Elementary and Middle Schools



III

- **Design for Flexibility:** Library media centers should be designed and furnished for optimal flexibility. Avoid a traditional, fixed circulation desk that inhibits the ability to maximize flexible use of the larger space.
- **Support Ubiquitous use of Technology.** The library media center should provide a robust wired and wireless infrastructure to support high-density use of technology. Strive to achieve an effective balance between electronic, technical and printed resources, allowing students to transition easily between paper, screens and tools when gathering data or solving a problem. Avoid fixed computer labs with desktop computers, opting instead for readily-available mobile devices, such as laptops, Chromebooks, and/or tablets.



General Planning Considerations for Elementary and Middle Schools



III

Creating a Secure, yet Welcoming, Environment for Students, Staff and Community

Student safety is influenced by a myriad of factors and conditions – from school policies and operational practices to building layout and site conditions. Tigard-Tualatin School District aspires to design and maintain school facilities that support District safety and security policies by enhancing access control and supervision. Secure design features should be seamlessly integrated in a manner that is inconspicuous and does not feel overly intrusive, ensuring that Tigard Tualatin schools retain a welcoming feeling to students, staff and community members. To achieve this balance, the District will implement the following design approaches when designing a new or renovated elementary or middle school:

- **Create a Secure Vestibule Entry with the Main Office as the Gateway to the School:** Access control is a crucial component of school security. A vestibule or sallyport at the main entry should effectively funnel people into the main office, allowing staff to intercept unknown visitors before they can access the rest of the building.
- **Facilitate Community use by Allowing Instructional Areas to be Secured After-hours:** Effective zoning can help staff control visitor access by clustering core areas that receive a high degree of community use, such as the commons, gymnasium and library. Separation of public areas from instructional areas within a school building can allow the facility to be used afterhours, while still restricting access to academic areas. Consider layouts that allow after hours access to select classrooms only, allowing certain rooms to be used for meetings.
- **Organize the Building and Site for Effective Wayfinding:** Effective circulation naturally controls the path of students, staff and visitors. Ensure that the building is designed with clarity of flow and easy wayfinding through thoughtful organization of spaces with ample signage. Limit the points of access to school sites through perimeter fencing and/or landscaping.
- **Enhance Natural Supervision through Clear Lines of Sight and Transparency:** Provide open designs and interior windows to create a sense of visual transparency between areas of a school facility. Transparent environments enhance connectivity among building users, allowing staff to supervise multiple areas of the facility simultaneously. The main office should have clear interior and exterior lines of sight, allowing staff to effectively monitor the main entry and parking lots.



General Planning Considerations for Elementary and Middle Schools



III

- **Create a Warm, Welcoming Aesthetic:** A secure entry does not need to feel confined or institutional. Design the main entry as a light, open space with amply natural daylight and high ceilings. Use natural materials, such as wood, to create a warm aesthetic.
- **Provide Distinct Parent and Bus Drop off Lanes to Promote Traffic Safety:** An effective site design with clear separation between parent and bus drop-off lanes can significantly ease traffic congestion and create safer conditions for student pedestrians. Ensure that school sites are thoughtfully designed to support safe arrivals/departures of students through multiple modes of transport. Parking should be positioned in front of the school (if feasible), with a distinct area for staff parking.





Area Program for Elementary Schools



Area Program for Elementary Schools



IV

Tigard-Tualatin School District
Area Program for Elementary Schools

Building Summary	Teaching Stations	Total Area
Classrooms	25	32,240
Exploratory		2,700
Media/Technology		2,780
P.E./Athletics		6,100
Administration		2,998
Specialist/Resource		3,360
Cafeteria/Commons		6,274
Building Support		6,296
Subtotal		**62,748**
Net to Gross Ratio of 20%		**12,550**
Total Gross Square Feet		**75,298**
Teaching Stations Derived by Capacity (See Note #1)	25	
Total Indicated Teaching Stations	25	
Gross Square Fee per Student		**116**

Notes:

1. Program based on 650 student capacity (including Pre-K and SPED students). Assumed class size for elementary education is 25 students per classroom.
2. Net to gross ratio captures circulation, stairways, wall thickness, mechanical chases, etc.
3. Distributed program area such as for restrooms will be determined during the design process. Final room size for multi-fixture restrooms will match with anticipated intensity of use. For example, restrooms near higher-capacity functions such as the Commons space will be larger.
4. Programmed storage areas within a functional group can also be subdivided as desired during the building design process.
5. During the conceptual design phase, determine approach for organization of learning spaces.



Area Program for Elementary Schools



IV

Tigard-Tualatin School District
Area Program for Elementary Schools

Area	QTY.	Student Count	S.F. Room	S.F. Total
Classrooms				
Pre-K Classroom	1	25	1,180	1,180
Kindergarten Classrooms (full day)	4	100	1,180	4,720
Flexible Classroom to serve K or Grade 1-5	1	25	1,180	1,180
Classrooms (Grades 1-5)	19	475	980	18,620
Teacher Prep/Office Space	3		180	540
Small Group Rooms or Extended Learning Areas	TBD		TBD	6,000
Exploratory				
Music Room	1		1,200	1,200
Kiln Room	1		100	100
Makerspace	1		1,200	1,200
Student Project Storage	1		200	200
Media/Technology				
Media Center	1		2,300	2,300
Media Workroom	1		180	180
Media Office	1		100	100
Conference/Small Group Study	1		200	200
Physical Education/Athletics				
Gym	1		5,400	5,400
PE Storage	1		180	180
PE Office (with Shower)	1		200	200
Club Storage	4		80	320
Covered Play Area (Actual Size = 4,000 S.F.)	1		4,000	Not Included
Administration				
Reception/Secretary	1		450	450
Health Room/Toilet	1		150	450
Principal's Office	1		180	180
General Offices (VP, Itinerate, Volunteer)	3		150	450
Counselor's Office (Includes Waiting Vestibule)	1		220	220
Workroom/Mail	1		350	350
Secure Storage/Records	1		150	150
Staff Room	1		500	500
Mediation/Tutorial Room	1		120	120
Conference Room	1		200	200
Staff Toilet - Men	1		64	64
Staff Toilet Women	1		64	64
Unisex ADA Toilet	1		100	100

Area Programs



IV

Tigard-Tualatin School District
Area Program for Elementary Schools

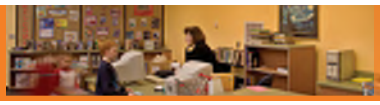
Area	QTY.	Student Count	S.F. Room	S.F. Total
Specialist/Resource				
Title I	1		400	400
SPED Resource Classroom & Toilet	3	25	350	1,050
Sensory Support Room/Mobility Room	1		250	250
Reading	1		400	400
Offices	3		120	360
ELL	1		500	500
Parent/Family Resource Room	1		400	400
Cafeteria/Commons				
Cafeteria	1		3,200	3,200
Kitchen	1		1,000	1,000
Kitchen Storage	1		150	150
Kitchen Freezer/Cooler	1		200	200
Kitchen Office Alcove	1		100	100
Servery	1		200	200
Kitchen Staff Lockers	1		100	100
Kitchen Staff Toilet	1		64	64
Stage	1		900	900
Stage Storage	1		160	160
Table/Chair Storage	1		200	200
Building Support				
Staff Toilets	4		64	256
Toilet - Boys	4		200	800
Toilets - Girls	4		200	800
Custodial Rooms	6		100	600
Custodial Office/Lockers	1		180	180
Custodial Work Area	1		180	180
Materials Storage	1		400	400
Custodial Storage (Just-in-Time)	1		400	400
Building Storage/Receiving	1		800	800
MDF Room	1		180	180
IDF Rooms	3		100	300
Electrical Room	1		200	200
Central Mechanical Room	1		800	800
Electrical Generator Room	1		200	200
Outdoor Equipment Storage	1		200	200
Total Student Capacity (Based on Class Size of 25 Students)		650		
Total Net Square Footage				62,748
Net to Gross				1.20
Total Gross Square Footage				**75,298**

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Elementary School Spatial Adjacencies

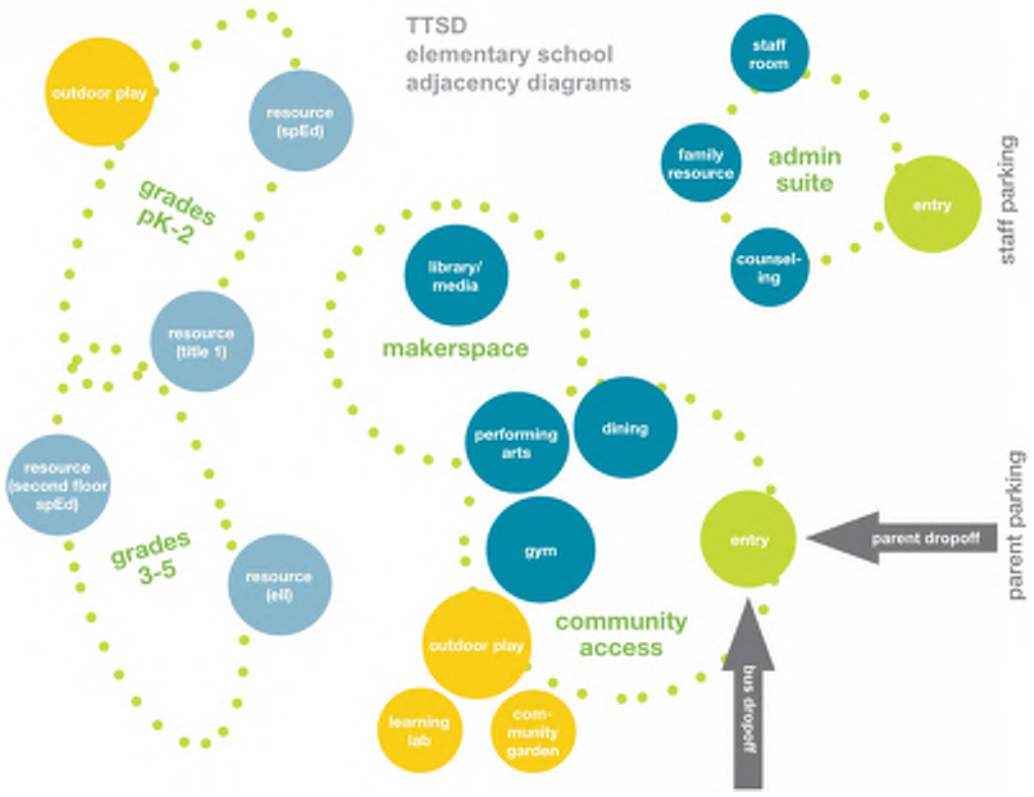




Elementary School Spatial Adjacencies

The District will reference the following desired spatial adjacencies when designing in the layout of new or renovated elementary school facilities:

- Organize learning neighborhoods by grade level, with shared access to core resources such as the cafeteria, gymnasium, stage, and library media center.
- Disperse specialized classrooms throughout the facility to minimize transitions and create an inclusive environment for all students.
- Support STEAM instruction and inquiry-based learning by providing a makerspace adjacent to the library media center.
- Create a facility that is zoned for community use, allowing public areas to be accessed after-hours while securing instructional areas. Centrally locate areas of the facility likely to receive community use, such as the gymnasium, cafeteria, stage, and library media center.
- Create an administrative suite that juxtaposes the main office with counseling and community areas. Provide sufficient space for a separate counseling waiting area, as well as a counseling office large enough to accommodate a small conference table.
- Provide multiple outdoor learning resources, such as learning labs, community gardens, and separate play areas for elementary and pre-k students.
- Organize the school site for effective drop-off and queuing, with planned separation of vehicle and pedestrian traffic. Provide distinct parent and bus drop-off lanes, as well as a separate staff parking area near the main office.



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Area Program for Middle Schools



Area Program for Middle Schools



VI

Tigard-Tualatin School District
Area Program for Middle Schools

Building Summary	Teaching Stations	Total Area	Potential Re-use
Academic Programs	41	60,240	3,500
PE and Athletics	1	22,300	15,000
Education Support		25,930	1,250
Building Support		6,910	-
Subtotal		**115,380**	**19,750**
Net to Gross Ratio of 30%		**34,614**	**4,938**
Total Gross Square Feet		**149,994**	**24,688**
Teaching Stations Derived by Capacity (See Note #1)	42		
Total Indicated Teaching Stations	42		
Gross Square Feet per Student		**150**	

Notes:

1. Program based on 1,000 student capacity @28 students per classroom with a classroom utilization rate of 85% (assuming a seven-period day, with classrooms unoccupied for one period per day for teacher prep). General classrooms, science labs, and elective classrooms (with the exception of drama) were counted as teaching stations, as well as the main gym.
2. Net to gross ratio captures circulation, stairways, wall thickness, mechanical chases, etc.
3. Distributed program area such as for restrooms will be determined during the design process. Final room size for multi-fixture restrooms will match with anticipated intensity of use. For example, restrooms near higher-capacity functions such as the Commons space will be larger.
4. Programmed storage areas within a functional group can also be subdivided as desired during the building design process.
5. During the conceptual design phase, determine approach for organization of learning spaces.
6. Science lab requirements to be documented in planning process.
7. Orange font reflects areas of the current building that may be renovated or repurposed.



Area Program for Middle Schools



VI

Tigard-Tualatin School District
Area Program for Middle Schools

Academic Programs	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Classrooms				
General Classrooms	29	29	950	27,550
Extended Learning Area Flex Space		6	750	4,500
Science Labs	6	6	1,100	6,600
Science Prep Rooms & Storage		3	350	1,050
Conferences/Flex Space		3	180	540
Makerspace		1	3,000	3,000
Makerspace Storage		1	500	500
Teacher Collaboration/Planning Rooms		3	400	1,200
ELL Classroom		1	950	950
IT Laptop Storage & Charging		3	75	225
Fine Arts				
Art Classroom	1	1	1,250	1,250
Kiln		1	100	100
Supply/Storage		1	200	200
Art Office		1	100	100
Band				
Band Room	1	1	2,000	2,000
Chair/Stands Storage (Included in Band Room Area)		-	-	-
Instrument Storage		1	300	300
Music Library (Shared)		1	100	100
Ensemble Practice Room (Shared)		1	100	100
Practice Rooms (Shared)		2	75	150
Sound Equipment Storage (Shared)		1	75	75
Office		1	100	100
Orchestra				
Orchestra Room	1	1	1,500	1,500
Chair/Stands Storage (Included in Orchestra Room Area)		-	-	-
Instrument Storage		1	200	200
Office		1	100	100



Area Program for Middle Schools



VI

Tigard-Tualatin School District
Area Program for Middle Schools

Academic Programs (Continued)	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Choir				
Choir Room	1	1	1,400	1,400
Office		1	100	100
Risers & Miscellaneous Storage		1	200	200
Electives				
Flex Engineering, Robotics & Tech Lab	1	1	2,000	2,000
Tech Lab Storage		1	250	250
STEM/CTE Classroom (Placeholder)	1	1	2,000	2,000
STEM/STE Storage (Placeholder)		1	250	250
Drama Classroom		1	1,500	1,500
Drama Storage		1	150	150
Core Academics Subtotal	**41**			**60,240**

Tigard-Tualatin School District
Area Program for Middle Schools

P.E. and Athletics	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Physical Education				
Main Gym	1	1	8,000	8,000
Auxiliary Gym		1	6,000	6,000
Gym - Multiuse Space		1	3,000	3,000
Boy's PE/Coaches Office/Toilet with Shower		1	250	250
Girl's PE/Coaches Office/Toilet with Shower		1	250	250
Boy's Locker Room & Toilets		1	2,000	2,000
Girl's Locker Room & Toilets		1	2,000	2,000
Mat Storage		1	300	300
PE Storage		1	300	300
PE Support Areas				
Exterior PR Storage Room		1	200	200
Covered Play Area @50% of Total Programmed Area		1	5,000	2,500
Athletics & Fitness Subtotal	**1**			**24,800**

Area Program for Middle Schools



VI

Tigard-Tualatin School District
Area Program for Middle Schools

Educational Support	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Administration				
Reception/Lobby		1	500	500
Principal's Office		1	200	200
Assistant Principal's Office		2	150	150
Head Secretary's Office		1	100	100
Secretary Workstations		4	75	75
Attendance Office		1	150	150
Bookkeeping Office		1	100	100
IT Office		1	150	150
Security Office		1	100	100
Records Storage		1	150	150
Conference Room		2	200	200
Supply Storage		1	100	100
PASS Room		1	300	300
Health				
Health Offic, Nurse Station and Cot Area		1	200	200
ADA Restroom		1	100	100
Admin Support Areas				
Workroom		1	350	350
Staff Restroom		2	60	120
Kitchenette		1	50	50
Storage		1	50	50
Mail Delivery & Process Center		1	50	50
Parent/Volunteer Room		1	100	100
Counseling				
Counseling Secretary		1	100	100
Counselor Office		3	150	450
Itinerant Offices		2	100	100
Special Programs				
Self-contained SPED Classroom		2	1,200	2,400
OT/PT Room		1	250	250
Itinerant Offices		2	100	200
Conference Room		1	150	150
Testing		1	75	75
Office - Work Area		2	150	300
Laundry		1	75	75
Equipment Storage		1	600	600
ADA Toilet & Shower		1	100	100

Area Program for Middle Schools



VI

Tigard-Tualatin School District
Area Program for Middle Schools

Educational Support (Continued)	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Student Commons				
Commons (Three Lunch Periods)		1	5,000	5,000
Student Store & Storage		1	150	150
Stage		1	1,000	1,000
Stage Storage		1	200	200
Sound Systems & AV Control		1	50	50
Restrooms		2	240	480
Staff Room with Kitchenette		1	700	700
Chair & Table Storage		1	250	250
Food Service				
Base Kitchen Complete		1	3,500	3,500
Servery		1	400	400
Office		1	100	100
Staff Lockers & Restroom		1	75	75
Custodian		1	80	80
Receiving		1	100	100
Library/Media Center				
Reading Room/Book Stacks/Circulation Desk		1	4,000	4,000
Office		1	100	100
Workroom		1	300	300
Textbook Storage		1	450	450
Equipment Storage		1	225	225
Educational Support Subtotal	**0**			**25,930**



Area Program for Middle Schools



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Tigard-Tualatin School District
Area Program for Middle Schools

Building Support	# Teaching Stations	QTY.	S.F. Room	S.F. Total
Custodial/Maintenance				
Custodial & Maintenance Office		1	150	150
Distributed Custodial Rooms		4	100	400
General Building Storage		1	750	750
Custodial Supplies Central Storage		1	150	150
Receiving Area		1	100	100
Miscellaneous				
Distributed Student Toilets		8	240	1,920
Distributed Staff Toilets		6	60	360
Gender Neutural Toilets		2	60	120
Boiler Chiller & Pump Room		1	1,600	1,600
MDF		1	250	250
Distributed IDF Rooms		4	50	200
Main Electrical Room		1	350	350
Sub Electrical Rooms		4	75	300
Valve Room for Science Labs		1	80	80
Riser Rooms		1	80	80
IT Workroom/Office		1	100	100
Building Support Subtotal	**0**			**6,910**
Total Student Capacity (Based on Class Size of 25 Students)				1,000
Total Net Square Footage				115,380
Net to Gross				1.3
Total Gross Square Footage				**149,994**





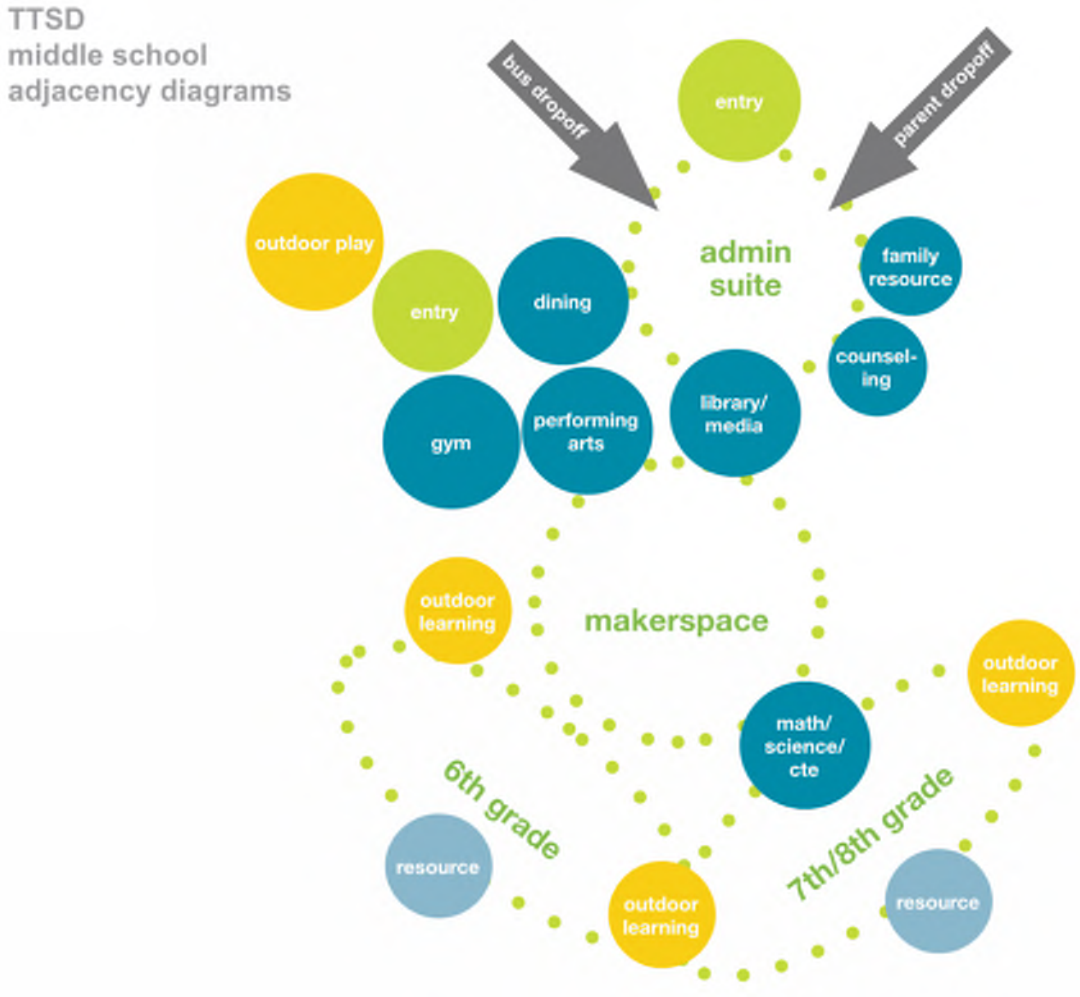
Middle School Spatial Adjacencies


TEAMWORK

Middle School Spatial Adjacencies

The District will reference the following desired spatial adjacencies when designing in the layout of new or renovated middle school facilities:

- Position the main office counseling areas at the front entry, serving as a gateway to core areas such as the commons, gymnasium and library media center.
- Organize classrooms into learning neighborhoods with shared collaboration spaces. Congregate 6th grade classrooms within their own wing, while still providing access to centralized resources (e.g. library media center and makerspace).
- Create a STEAM cluster consisting of a centralized makerspace at the heart of the school, with adjacent science, math and technology classrooms. This will create a synergy between STEAM subject areas, promoting collaborative, hands-on activities with shared resources.
- Distribute multiple outdoor learning areas around the facility so that they are easily accessible from different learning neighborhoods. Position outdoor learning areas away from parking lots.
- Organize the school site for effective drop-off and queuing, with planned separation of vehicle and pedestrian traffic. Provide distinct parent and bus drop-off lanes.



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Appendix A - Meeting Minutes


HENLEY ELEMENTARY

Appendix A - Meeting Minutes



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Meeting Notes

From	Elisa Warner	**Date**	August 17, 2016
Project	TTSD Ed Specs	**Project No.**	14014
Subject	Ed Specs Committee Meeting #1		

Ernie Brown welcomed the committee members and initiated a round of introductions. Karina Ruiz then presented an overview of the purpose and intent of Educational Specifications (Ed Specs). The purpose of an *educational specifications* document is to effectively align the District's strategic goals, curriculum requirements, and instructional philosophies with facility needs, ensuring that school buildings enhance and facilitate effective teaching and learning practices. Development of Ed Specs requires: a review of current and future educational programs; identification of planning and design characteristics that support the District's teaching and learning approaches; documentation of spatial relationships between programs; and translation of building users' needs into specific space requirements.

Background on the District's Recent Long Range Facilities Planning Activities

Rebecca Stuecker briefly summarized the District's recent Long Range Facilities Planning activities. The development of Tigard-Tualatin's 2015 Long Range Facilities Plan involved the creation of three (3) task forces designated to cover special focus areas related to the District's short and long-term facilities needs: 1) program task force; 2) safety task force; and 3) athletics task force. Task force reports were emailed to Committee members for their review, as the recommendations provide a larger context for the work of the Ed Specs Committee.

Changing Role of Libraries

Karina Ruiz provided a brief overview of the changing role of school libraries. She queried the group regarding their vision for libraries at TTSD schools. Comments from the Committee members included:

- Provide libraries with makerspace features (e.g. project area, 3D printers, storage, appropriate flooring, durable finishes, etc.).
- The library is a "learning commons" that may include STEM (but not be exclusive to STEM).
- Design the library as the "living room" of the school.
- The library serves as a collaborative zone (e.g. access to resources, spaces for student and teacher collaboration, etc.).
- The library serves as a gathering place for students, staff and community. It is the site of community meetings, guest speakers, etc. The library is often used for professional development activities.

IBI Group is a group of firms providing professional services
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- It is important to distinguish that a library's function as a "community space" is different than being "welcome to community." Both are important. The library must be zoned for after-hours community use.
- Design as a flexible space (power, data, furnishings) to accommodate multiple uses simultaneously.
- Consider proportion of electronic resources relative to printed materials in the future (e.g. Ridgeview High School model – most non-fiction material is electronic). This may decrease overall size requirements.
- Ensure effective lighting options are present.
- Provide comfortable, inviting furniture (for kids and adults – range of body sizes).
- Ensure the library is technologically equipped (flexible power and data).
- Makerspaces have a broad range of possible models. It is important to understand the materials and storage needs. Students should have access to design software.
- Ensure shelving and other furnishings are ADA accessible.
- Consider acoustics and noise-control measures.
- The library should be a destination for students – the space should draw them in. Make the space kid-friendly, inspiring students to think "I can be a part of this at any time."
- The library is a transitional space.
- The District is moving away from computer labs – technology is dispersed. Testing would mostly occur in classrooms.
- At high school level, the library should include areas that serve as a quiet study refuge. Also, design libraries as "idea hubs" that support self-directed inquiry and learning experiences.
- Design the library as a large, versatile space that allows multi-grade activities.
- Rethink the traditional circulation desk. Does it need to be so large and fixed?
- Design for easy supervision (good sight lines). Nooks and crannies need to be visible.
- The library should have a connection to the larger school. Design as central and open. Students should not have to search for a door. The library should not be secluded or difficult to find.
- Design multiple collaborative zones (ability to initiate and implement a group project).
- Provide durable, easily maintained flooring/finishes.
- Design the library as a "grand area of learning" that is highly visible and accessible. The library should be a learning extension of the classroom.

Area Program Discussion

A sample area program was presented for discussion purposes. Committee members provided the following comments and feedback:

- A committee member asked: "What are the biggest regret factors for newly constructed schools?" Responses from various committee members and facilitators included: insufficient quantity of restrooms; lack of small discussion areas; lack of balance between formal and informal areas; inadequate storage capacity; inadequate specialist classrooms (leading to classrooms being used for other purposes, effectively reducing overall school capacity).
- At Nancy Ryles, classrooms have a shared space divided by a curtain. This is an effective collaborative resource.
- A "calming room" is needed near the main office.

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- Multiple ELL rooms may be needed. For example, there are four (4) ELL teachers at Metzger. Each teacher does not necessarily need a dedicated classroom, but more than one (1) room is likely needed. Two (2) ELL classrooms should be included.
- Anticipate need for Title I space. Deer Creek recently became a Title I school; this was not anticipated when the building was originally designed. Provide one or more Title I spaces (accommodating 4-6 students). These spaces require acoustic separation.
- Provide a separate nurse's office (in addition to the health room). This is needed for confidentiality.
- A volunteer room / PTO room is a useful resource.
- For the main office, six (6) offices + principal's office is sufficient. Although elementary schools do not currently have vice principals, retain this space. The literary specialist also requires an office in the admin suite. Offices include: principal; vice principal (or other use); secretary; literary specialist; counselor; and, nurse.
- At Templeton, classrooms have a shared storage room that can be used as a collaboration area.
- Include one (1) pre-K classroom. Although the District is considering a centralized early childhood center, there may be local programs as well (blended model).
- Four kindergarten classrooms are needed.
- Consider making 5th grade classrooms larger (bigger bodies). However, classrooms in the presented area program are generously sized (980 SF), so they may be sufficient.
- Ideal size of learning neighborhoods is four (4) classrooms. Organize neighborhoods to minimize transition times.
- Extended learning areas or learning commons are very valuable spaces. Two smaller spaces (per learning neighborhood) are preferred over one larger space. Group sizes tend to be 2-8 students. Large group activities can occur in the library.
- Ensure corridors are adequately wide.
- Be creative with storage (e.g. "found spaces" such as under the stage).
- Provide a large covered play area – the larger the better (possibly even 6,000 SF – as large as the gym). At the next meeting, information will be provided on the sizes of covered play areas at select TTSD schools.
- Ensure that "lessons learned" from other District schools are considered.
- A separate art room is not needed. Art activities can occur in the makerspace or the extended learning areas.
- A separate SPED learning resource center (for pull-out interventions) would be a helpful resource. It is difficult to hold interventions in open extended learning areas (too distracting).
- A family resource room would be a valuable resource during school hours.
- New building codes will ensure that there are ample restrooms. Place gang handwashing stations separate from restrooms for better supervision.
- A student store is *not* needed.
- Add a reading specialist room. Specialist classrooms do not need to be "labeled" – keep them flexible. Half-sized classrooms are sufficient for these rooms.
- SPED should be broken out into individual instructional spaces, not one large resource room with offices.

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Next Steps:

- School tours will be held in the near future. Dates are TBD.
- The next committee meeting is currently scheduled on August 31st. However, this date may be problematic for administrators. This meeting may be rescheduled.
- At the next meeting, DOWA-IBI Group will compare the sample program to space allocations at Metzger and Woodward.

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TTSD Meeting Minutes

From	Elisa Warner	**Date**	October 18, 2016
Project	TTSD Educational Specifications	**Project No.**	16049
Subject	Ed Specs Committee Meeting #2		

Reflections on School Tours
Karina Ruiz led the group through a review of images from the schools toured by the Committee: Trillium Creek Primary School, Edy Ridge Elementary School, Laurel Ridge Middle School, and Parkrose Middle School. Committee members' comments are summarized below:

What were the facility elements or features in the schools we toured that you felt would best serve the TTSD community?

- Use of natural light.
- LEED and energy conservation.
- Minimize hallways.
- Operable windows / access to fresh air. Automated system for prompting opening of windows.
- Variable and flexible furniture and storage options.
- Multiple stations in classrooms for small groups.
- Quiet shared spaces.
- How can we balance transparency with safety? There are ways of dealing with this. First responders prefer transparency.
- Green walls (shading, cooling).
- Consider giving up some of the shared spaces or community spaces (that are sometimes underutilized) in favor of larger classrooms. Larger classrooms are needed especially at the elementary level. Classroom set-up requirements are limited by available space. Also, a lot of volunteering happens in classrooms (additional adults in the room).
- Trillium Creek was very quiet; model this acoustical design.
- Gyms that open to the exterior (bring the community in).
- Larger spaces as multifunction spaces that are zoned for after-hours use (ability to secure instructional areas).

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- Ensure spaces are purposeful. Sometimes there is a danger of designing a space that is so multifunctional that it serves no function.
- Schools had a sense of volume or space where they did not feel boxed in.
- Spaces that are intentionally designed for small group work.
- Isolated music rooms. Good practice rooms at Parkrose. Flow of music classroom into performance area.
- Learning labs / terrarium features (e.g. at Laurel Ridge). TTSD integrates a lot of STEM activities with outdoor gardening areas. Outdoor classrooms. Secure access to outdoor space for students and staff (e.g. gated). Multiple spaces would be ideal.
- The District needs to determine what their ideal library/media center looks like. Consider a traditional yet flexible design for this space.
- Liked floor-to-ceiling energy consumption monitors at Trillium Creek. Would like to see this at every building in the district. Inspires curiosity and wonder among kids.
- Like idea of reusing rainwater, conserving resources.
- Keep counseling in the main office.
- Centralize resources (Title I, ELL, SPED, etc.), integrating these areas with other instructional areas – immediate access without having to travel long distances.
- Spaces for all-school performances. Position stage with ability to open up to the cafeteria or gym to expand performance space.
- Intentional approach to designing the front office (e.g. Edy Ridge) vs. a more casual entry (e.g. Trillium Creek). Security at front office (size for circulation). Provide a distinct entry.
- If there are not welcome centers at each school, make sure that the main office is designed as a hub for visitors (i.e. welcoming to community). Even at both Ridges schools, each had their own distinct entry.
- Vestibules did not feel unwelcoming. They were bright and well-lit. Things can be closed off, yet still feel open.
- Be intentional about what spaces are designed for community access (e.g. main office, gym, commons, library/media). Design should allow school to partition off areas for security.
- Storage is an important consideration that should not be overlooked (especially with makerspaces). Ensure there is sufficient space to store student projects.
- Avoid long corridors.

Were there any elements or features that you think would *not* work for TTSD?

- "Playground library" (no slide or treehouse).
- Extended learning areas that are too loud or disruptive.
- Some classrooms seemed too small.
- Balance transparency with avoiding distraction among students. (Karina reflected that her experience of other Districts has been that students may be initially distracted, but the effect soon diminishes). The other balance is between the amount of glass vs. tackable surfaces, etc.
- Did not like the lack of cafeteria at Trillium Creek. This is a philosophical decision by a school district.

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- Did not see a good example of a makerspace at any of the schools. Consider a partitioned room (messy and clean areas). One of the best-used spaces at Laurel Ridge is their FACS room, as it is very project-based.

Review of Updated Elementary School Area Program

Karina distributed an updated elementary school program of requirements with key changes highlighted. The class size assumption is 25 students. The new program integrated comments from the last meeting, and looked at SF allocations for similar spaces at recently constructed schools, as well as other schools in the District. Committee comments are summarized below:

- Counselor's office for elementary level is a major hub with check-in/check-out – it is a counselor-led program. Extra space is needed. Need counselor office that opens up into a meeting area. Counselors have even taken over a classroom in some places.
- Before making space-related decisions for SPED, consult with SPED representatives. There are supervision challenges when breaking up SPED areas. It is important to weigh the advantages and disadvantages. Perhaps include an undefined block of space instead of individual spaces (to be divided later).
- Are ELL and Title I to be lumped in with SPED? No, keep them separate. Different entry points. Don't go with a "hub" model. Karina asked District to work with SPED area, delineating breakdown of spaces (staying within overall SF allotment).
- There was some discussion about whether a community resource room was necessary or a "wish list" item. Ernie reminded that group that there may be trade-offs down the line, as the District only has a finite amount of SF to work with. Karina reminded the group that the program of requirements is a general roadmap – it will change somewhat during design. The group must determine if there are major areas missing or over/undersized.
- Ernie feels that for Templeton, there is insufficient SF in the package right now. That school will have greater ELL and Title I needs.
- It would be nice to have five kindergarten classrooms. Four are currently present, but five may be required in the future. If the District does not plan for this, one kindergarten class will need to have a small room.
- Ernie emphasized that we cannot add to scope – especially with the multiplier, small changes become immense. We need to stay within the allotted SF.

Spatial Relationship Exercise

The committee was divided into two groups to conduct a spatial relationship exercise. Each group created a visual representation of the relationships between spaces in a school facility. Highlights from each group exercise are summarized below:

<u>Elementary School</u>

- Staff parking at the main entry near the office.
- Parent drop off and bus drop off positioned away from staff parking.

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- Gym / performing arts centrally located.
- STEM center (makerspace).
- Classrooms staked (two levels) with specialists divided between floors.
- Counselors positioned near front office.
- Separate pre-k playground.
- Multiple outdoor learning labs (possibly self-contained).

Middle School

- Different routes for buses and cars.
- Counseling and main office positioned in the front, along with the community room.
- Dining and commons area near the front, positioned for community use.
- STEAM cluster, co-locating centralized maker space with science, math, tech CRs. These areas tend to use a lot of the same resources.
- Small learning rooms dispersed among learning areas.
- 6th grade in a separate wing, but still providing access to centralized resources (e.g. makerspace, etc.).
- Outdoor learning areas positioned away from parking lots.

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TTSD Meeting Minutes

From	Elisa Warner	**Date**	October 24, 2016
Project	TTSD Educational Specifications	**Project No.**	16049
Subject	Ed Specs Committee Meeting #3		

The Ed Specs Committee reviewed a draft middle school area program, providing feedback on the types of spaces to be included in future middle school projects. The Committee's comments and questions are summarized below.

- A Committee member asked if the program provided separate teacher offices, allowing 100% utilization of classrooms. Karina Ruiz explained that the program was not organized in this manner; the assumption is that each teacher will have their own classroom. Classroom utilization will reflect the need for one prep period per day.
- There was some discussion over the value of extended learning areas and/or small group rooms. Current TTSD middle schools lack these type of spaces. Such spaces are valuable, but they must also be purposeful. There was discussion over whether the space allocated for extended learning areas would be better utilized as additional classrooms. An advantage of extended learning areas is avoiding double-loaded corridors. Spaces adjacent to classrooms are preferred over small group "fishbowl" rooms (easier to supervise). The Committee ultimately decided that open extended learning areas were preferred over enclosed small group rooms (even if transparent).
- The Committee considered the question of how many science labs are needed at the middle school level. Twaility has an unusual number of science teachers (10); it would be expensive to provide so many science labs. The Committee decided to include six (6) science labs, and increase four (4) of the general classrooms to 990 SF "wet labs."
- The Committee supported the inclusion of the proposed makerspace and storage area.
- One teacher collaboration room per pod is acceptable.
- The ELL classrooms should be moved to the Specialized Programs section of the Area Program.
- The Committee felt that there was sufficient space overall for music programs (e.g. band, orchestra and choir). Consider consolidating music offices. The specific breakdown of music-related spaces should be vetted by music instructors during pre-design.
- The drama classroom should not be considered a teaching station (keep it flexible).

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- The makerspace should not be considered a teaching station. Most likely, this space will not be staffed; however, some districts have assigned classified staff to makerspaces to maintain equipment, etc.
- It is unlikely that the current makeshift "makerspace" area at Twality will be repurposed for this function (a new makerspace will likely be added).
- Ample STEM and maker areas should be provided. Some of these spaces could also could be used as community spaces.
- A FACS room could be added in the flex CTE space (the space could accommodate a variety of electives). Hazelbrook is the only middle school that has a FACS program now.
- Only very limited shower space is currently included in the locker rooms (specifics will be revisited during pre-design, including approach to supporting needs of transgender students).
- The covered play area will be adjusted to 50% of calculated SF (based on a lower cost of construction). This area can be used for lunch recess as well as for outdoor courts.
- The listed administrative offices appear acceptable. Two cots minimum are needed in the health room.
- Add a copier to each teacher planning room to allow them to function as mini-workrooms.
- The parent/volunteer room could be smaller (office-sized). 100 SF is sufficient.
- Add a second conference room in the main office. At least one of the conference rooms should be accessible from both the corridor and the main office.
- The Committee liked Sherwood's community room that was accessible from the exterior, allowing direct after-hours access.
- The library does not require excessive storage – there is the danger of these spaces being treated as dumping grounds.

Adjacency Exercise Review

- Rebecca Stuecker presented several adjacency diagrams based on the feedback obtained during the last Ed Specs Committee meeting. Committee members liked the following features:

Elementary Schools

- Distinct admin, academic, community zones.
- Makerspace and library connected to public realm for community access.
- Dispersed special program spaces throughout academic areas.
- Separate outdoor play for pre-k.
- Community access designed with after-hours use in mind.
- Multipurpose room as the central component (afterschool activities, etc.), and positioned near playground for easy access during recess and lunch.
- Parking lots designed for effective traffic flow (before/after school as well as after-hours).
- Community garden as well as outdoor learning areas.

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Middle Schools

- Makerspace as the heart of the school. The makerspace does not need to be in the literal center, but it is "centered" instructionally speaking (with all programs/classes having access to the space).
- Math, science and CTE are strongly connected.
- Separate parent/bus drop-off lanes.
- Outdoor learning areas.
- Small group spaces dispersed throughout.
- Separate entry at arts area.
- Zoning of public vs. private spaces.
- Dining/commons function will be adjacent to administrative area (change the diagram).
- Effective interior and exterior circulation (good flow).

These are general depictions only. Site-specific discussions will occur at a later time. There was additional discussion regarding the intentional design of pick-up/drop-off lanes. Staff would like to minimize number of supervisors needed during this time. Supervision is a big challenge (and teachers cannot do morning prep). Think of adjacencies, not footprint.

Building and Site Relationships

Preliminary diagrams were shared for various school sites to show building and site relationships. Committee members had the following comments:

- One of challenges at Templeton is that there are a lot of kids that walk across the fields after hours. There are two entry points to the site; however, 70-80% of people access the site via the parking lot area. Consider ways to buffer the fields though fencing or shrubbery.
- What is a higher priority – parking lot access to the building or to the fields? The building should be the first priority; access to fields is secondary. Templeton has major parking flow issues. In terms of safety, it is better to position the parking in front.
- If Templeton was relocated, could this free up space for Twality's parking? Buildings are within close proximity.
- Community use of fields occurs year-round. However, this is secondary to school use.
- What will be the Ed Spec's position on security? Fencing is desired, but needs to remain accessible after-hours for community use. Control gates during school hours. Provide clear points of access (not wide open sites).
- Create a separation between Templeton and the mixed-use site. The new (replacement) elementary school could be located elsewhere on the site.
- Parking is currently situated at the center of both sites; this is problematic.
- Consider providing outdoor space for science inquiry, if possible. This may be created with stormwater retention areas. Other options may require reorientation of the existing track.

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Physical Characteristics of a Safe and Secure, yet Welcoming, Entry

The Committee discussed building and site features that create a secure, yet welcoming, environment for students, staff and community.

- Parkrose Middle School's entry was an effective model. Committee members liked how people were funneled into the office. There was good clarity of flow. The entry was brightly lit, but not blinding.
- Spaces that are open and light are welcoming. Combine controlled access with high visibility and ample lighting.
- The Ridges schools had a warm feeling due to the use of wood (different aesthetic than Parkrose, but similar function). Ultimately, the Committee felt like the Ridges' style of entry was more welcoming (felt more spacious, liked the warmth of the wood).
- Avoid institutional appearances; aesthetics plays a role in making entry welcoming.
- Effective transparency (interior and exterior) is vital. Staff need to be able to see people walking up to the building. Provide a good view of the parking lot and drop-off areas.
- Good wayfinding is needed, along with a restricted number of entry points.
- Schools require seating in a waiting area (sufficient for 1-2 families) somewhere outside main office. The amount of seating provided at Ridges seems sufficient.

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TTSD Meeting Minutes

From	Elisa Warner	**Date**	November 17, 2016
Project	TTSD Educational Specifications	**Project No.**	16049
Subject	Ed Specs Committee Meeting #4		

- Karina Ruiz distributed the draft Tigard Tualatin Educational Specifications document for the Committee's review. Each section was examined by the committee.
- Karina asked each Committee member to verify their name and title in the acknowledgements section. Several edits/title changes were noted.
- Slight wording adjustments were made on a few vision and planning consideration items.
- A summary of the District's STEAM plan (under development) should be included as an appendix item. This will be forwarded to DOWA-IBI Group, once available.
- The Educational Specifications document will serve as a launching pad for design-related discussions for the upcoming elementary and middle school projects.
- Ernie Brown thanked the group for their participation in the Educational Specifications Committee.

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Appendix B - TTSD STEAM Plan



Appendix B - TTSD STEAM Plan



IX

16-1121 STEM Advisory Team I

Monday, November 21, 2016 4:19 PM

- [x] Noelle Gorbett - STEM TOSA
- [x] Carla Birkholz - STEM Teacher, Twality
- [x] Jennifer Scypinski - IT
- [x] Adrienne Ash - Fowler Middle School
- [x] Rhiannon Boettcher - Hazelbrook
- [x] Todd Robson
- [x] Sarah Oaks
- [x] Debbie Pearson

Purpose

Help TTSD provide Architects with guidance around the basic guidelines for Middle School STEM/Maker and Science Classrooms

Background

- TTSD Educational Specification
- PPS Ed Spec for Middle School Science & STEAM
- Noelle's Google Doc

SCIENCE ROOMS

Functions

- Mobile teacher instructional station
- Gas lines not necessary in Middle Schools (can be a safety concern), hot plates would be acceptable for students with a "teacher" demo gas line desired
  - Hot plates have durability issues and can walk away, but are preferable for even heating
- Movable lab benches with "wheelbarrow" casters to allow ease of movement, particularly with heavy/durable tops
- Walls for displaying student work
- Supports life, earth, and physical science and STEM curriculums for grades 6-8. Number of science classrooms to be determined at time of master planning; ideally (6) - 2 / grade level)

Location

- Science classrooms located within close proximity to each other to be able to share prep room(s)
- Science classrooms located within close proximity to STEM
- Extended learning spaces between classrooms instead of hallways
- Attempt to organize classrooms in a manner that creates usable space

Relationships

- Adjacent, with transparency to commons/extended learning
- Adjacent to science support and prep rooms

Storage

- Cabinets with solid locking doors - keyed alike between rooms
- Adjustable shelving

Appendix B - TTSD STEAM Plan



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- Capable of storing: microwaves, aquariums, fish tanks, rubbermaid tubs (ex. Hazelbrook)
- Space for bookshelves or portable file cabinets
- Microscope cabinet (minimum 35) - mobile to move between rooms
- Curriculum specific storage:
    - Drying racks on walls, consider seismic safety
    - Pegs for aprons
    - Goggle sanitizing cabinets
    - Safety equipment (spill kit, fire extinguisher, fire blanket, first aid kit)

Floors

- Hard surface flooring. Consider acoustics, teacher and student comfort, ability to move furniture and ease of cleaning
    - VCT preferred due to "forgiveness" factor (ex. Dropped technology)

Walls

- Minimum one wall of windows
- Minimum of (2) 4' x 8' or (1) wall length 4' x 12' magnetic white board(s) on teaching wall--matte. Hooks preferable to tack strips.
- Wall to display student work, if possible, or between storage cabinets
- Capacity to hang bowling ball from one area of the classroom

Windows

- Generous natural light with sunshade to minimize glare - does not need to be floor to ceiling
- High and low operable windows for air circulation
- Operable window shades to control natural light as needed
- Light shelves allowed if appropriate and feasible
- Pulldown screen

Plumbing

- (6) sinks minimum (more desired), perimeter style configuration - utilizing window wall would open wall for display/storage; (1) optional for teacher's station (mobile reservoir would be acceptable)
- Eyewash station - 1 / classroom
- Chemical shower (alarmed) - 1 / school (confirm minimum requirements with Phil)

Power

- Outlets located above sinks, at regular intervals around the room to support student work at counters
- Drop down (retractable) power preferable to floor boxes
- At least 2 per sink station
- Minimum (2) ethernet outlets per room near the teacher desk
- Consider classroom technology when accounting for outlets at front of classroom: document camera, computer, USB, HDMI, DVD/VCR to projector (often on cart)
- Ceiling or wall mounted projectors

Lighting

- Natural lighting
- Provide consistent direct and indirect lighting throughout the room appropriate for tasks as well as utilizing the overall space
- Provide a means for making the room dark when necessary

Appendix B - TTSD STEAM Plan



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Acoustics

- Acoustic isolation between rooms
- Acoustic treatment throughout the room to reduce or eliminate background noise
- Ability to simultaneously conduct large and small group instruction

Furniture

- Allow for student movement while seated to increase learning (boomerang chairs), back support
- Tables, chairs and desk to match number of students programmed for space. Chemical resistant surface/scratch resistant.
- Double student tables
- "Standing" height at the counter, sitting height at tables
- Standardized at District level

Equipment

- Teacher desk and chair - standing height
- Pull down screen for projection
- Hot Plates
- Fire blanket
- Paper towel and soap dispensers (1 per sink)

Special Conditions

- Clear line of sight out of classrooms

STORAGE & PREP ROOMS

General Requirements

- Provide storage room per area program/grade level
- If connected to outdoor space, "mud room" capacity would be desired with floor train and spray off area
- Card reader on door to outside science work areas

Location

- Prep rooms and storage rooms adjacent to each other
- Chemical storage is secured within the Storage Room
- Large centralized preferable to small prep/storage between rooms
- Adjacent to science classrooms

Function

- Carts (3-6) to transport equipment, industrial sized - durable plastic
- Storage for science curriculum
- Counterspace for working

Storage

- Abundant secure cabinets with doors and drawers of various sizes with solid, locking doors (match classroom storage keys)
- Secure chemical storage for flammable, acids, bases (4-5' cabinets), countertop or otherwise accessible; need tall capacity for large bottles (bleach, vinegar)

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- Cabinet area near chemical storage to store "inert" liquids and chemicals
- Area for storing microscope carts

Floors

- Provide hard surface, chemical resistant flooring

Plumbing

- Single sink
- Dishwasher
- Water purifier not necessary for distilled water

Equipment

- Residential refrigerator and freezer
- Counter fridge for lunches
- Icemaker, undercounter
- Microwave
- Portable fume hood - 1 per school
- Paper towel and soap dispenser

Power Requirements / Low Voltage

- Provide hard surface, chemical resistant flooring
- Ample power for equipment

Special Equipment

- Locked - teacher to control access

Appendix B - TTSD STEAM Plan



IX

16-1122 STEM Advisory Team II

Tuesday, November 22, 2016 4:22 PM

- [x] Noelle Gorbett - STEM TOSA
- [x] Carla Birkholz - STEM Teacher, Twality
- [ ] Jennifer Scypinski - IT
- [ ] Adrienne Ash - Fowler Middle School
- [x] Rhiannon Boettcher - Hazelbrook
- [ ] Todd Robson
- [x] Sarah Oaks
- [x] Debbie Pearson

Purpose

- Help TTSD provide Architects with guidance around the basic guidelines for Middle School STEM/Maker and Science Classrooms
- Will refer to guidelines for "A" component of STEAM, concerns about different disciplines
- Consider equipment lists as shared Google doc - may want to customize some equipment for schools and others be more standardized
    - Maybe schools can identify some "elective" items

Background

- TTSD Educational Specification
- PPS Ed Spec for Middle School Science & STEAM
- Noelle's Google Doc

STEAM LAB

Functions

- Space supports STEAM / CTE classes for Grades 6-8
- Occupied with classes throughout the day
- Flexible for different types of modern learning and instruction, large group, small group, and project-based learning
- Display of instructional materials and student work
- Space for team projects
- Divided space for clean / messy tech (like computer lab and shop space) with clear line of sight and lockable divider

Location

- Adjacent to Science and Math classrooms and prep room
- Near to MakerSpace
- Adjacent to restrooms

Storage

- Storage primarily to support projects
    - Large lockers would be preferable (15"x15"x30") with solid doors or shop tables (dirty side)
    - Rolling cabinets with locking doors (clean side)
    - Could utilize up to 100

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- Lockable tool cage large enough to hold class sets of tools, power tools, equipment
- Rolling tool chests
- Goggle sanitzing cabinet
- Bins for small parts with locking doors
- Space for portable file cabinet
- Charging cart

Floors

- Hard surface flooring. Durable, consider potential chemical spills
- Floor drain
- Grid system (1' x 1') in adjacent extended learning area for activities (floor tiles would be fine), or some way of marking off area on "clean side"
- Fatigue mats to consider in areas with concrete floor or subfloor

Walls

- Large magnetic white board walls for team brainstorming
- High windows (clerestory) or windows to corridor for natural light
- Capacity to hang bowling ball from one area of the classroom

Windows

- Natural light with sunshade to minimize glare
- High and lower operable windows for air circulation or other means for ventilation
- Consider shatterproof class in the event of accidents

Plumbing

- Minimum of two sinks
- One plumbed eyewash station per classroom
- Access to chemical shower

Power Requirements

- Generous power, retractable and wall outlets desired in dirty area and clean area
- 2 Separate 30 amp circuits for large equipment (1 in each learning space) for laser engraver, charging cart
- Presume (30-35) computer stations, laptops with a charging cart
- Same projection and media capabilities as typical classroom: electrical, HDMI, USB
- Ethernet ports in clean side for software updates and on dirty side for phone

Lighting

- Quality and capacity considering work with small parts and wires

Acoustics

- Some acoustic separation between rooms
- Isolation of STEAM from other rooms
- Acoustic treatments for noise absorption

Furniture

- Fixed furniture in the dirty area - standing, durable tops with stools for hand and power tool use
- Flexible furniture in clean area - seated with chairs
    - Groupable small tables for (2), no wheels

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- Teacher desk and chair

Equipment

- Detailed list to be generated at a separate time
- Fire extinguisher
- Safety equipment (goggles and glasses)
- Paper towel and soap dispensers

Special Requirements

- Line of sight to flex areas
- Ventilation system on dirty side

Maker Space

Functions

- School and community resource area for creating/making
- Can be separated from media center/library to control access when not in use

Location

- Fixed position within Media Center/Library (presumes both Site Tech and Media Specialist/Librarian adjacent to space)

Relationships

- Consider that loud and quiet activities will occur simultaneously

Storage

- Mobile storage bins for materials with locking doors
- Assumes storage area

Floors

- Consider some more durable flooring for messy activities

Plumbing

- Handwashing sink in or adjacent to the area
- Potentially an eye wash station

Power

- Power for small power tools (dremels) and computers - wall outlets
- Ethernet outlets

Acoustics

- Acoustic treatments throughout the media center/maker space to allow simultaneous instruction for large and small groups

Furniture

- Fixed counterspace for 3D printers and vinyl cutters

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Equipment

- Detailed list to be generated at a separate time

Special Requirements

- N/A

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