

Master Facility Plan  
Update

FUNCTIONAL  
TEAM  
REPORT



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# Executive Summary

## **CLASSROOM SPACES TEAM**

### **Group Composition/Meetings**

The Classroom Spaces Functional Team is composed of faculty, staff, and students representing both Hinsdale Central and Hinsdale South. These individuals are committed to providing our students with the most desirable spaces in which to learn and grow, spaces that nurture, motivate, and inspire academic pursuits. On February 13, 2015, the team's Champion set up a Google Community devoted to our Classroom Spaces Functional Team. It was a place where members introduced themselves to each other, posted links to current research, and blogged about concepts and concerns. Face-to-face meetings took place on March 17, April 10, and May 22, 2015. A site visit was planned for April 23 but had to be rescheduled to the 28<sup>th</sup> due to scheduling conflicts. The site schools were unable to host the Functional Team when members were able to participate. Thus, no site visits occurred and virtual research was conducted instead. Student input was garnered via a survey administered to South's Student Council to find out what areas of classrooms they see as needing the most attention. On June 4, a final meeting was held with the Arts Functional Team Champion, Steering Committee Member, and District Architect.

### **Purpose**

The Classroom Spaces Functional Team met for the purpose of comparing our present status to what was captured in the previous Master Facility Plan in order to highlight current areas of need in the number, size, and configuration of academic classrooms. Additionally, the team conducted extensive research into best practice in the field of educational environments, studying how lighting, sound, aesthetics, airflow, technology, safety, nature, and furniture impact lesson effectiveness, room functionality, student achievement, creativity, and motivation, as well as staff and student mood and energy levels. Finally, the group prioritized areas of improvement at both sites

### **Assessment of Current Conditions**

Modern high schools that have been designed to accommodate revised instructional pedagogy, to provide the 21<sup>st</sup> Century Learning Skill development that students should receive, and to incorporate the instructional technology tools of the digital age differ widely from schools built decades ago. Hinsdale South and Hinsdale Central fall into the latter group. As a result, our teachers and students attempt to operate in relevant, innovate ways in old-style environments that haven't been updated to reflect current teaching and learning modalities and needs.

Current classroom spaces in District 86, across both buildings have substantial drawbacks at two levels. First, at the building level, there are few spaces in each building that have a flexible design. This is important because the small class sizes leave almost no place for collaboration among different courses, and the locations for performances and activities are very limited. We seek to introduce new learning laboratories at both locations to ameliorate these deficits.

Second, at the classroom level, the classroom design is rooted in 19<sup>th</sup> century technology with some 20<sup>th</sup> century upgrades. Important research into kinesthetics and aesthetics reveal that the culture, climate, and design of a classroom can contribute as much as one year of learning over the traditional educational environment. (see Barrett, Zhang, Davies & Barrett, "Clever Classrooms"). We want to modify some existing classrooms to incorporate enhanced lighting, furniture, and design and work in an ongoing capacity with teachers in these rooms to find how the most beneficial modifications can be brought to scale at a building level.

### **Issue 1** – *There is a significant shortage of classroom spaces at Hinsdale Central.*

The shortage of available space at Central is due to increasing enrollment within the boundaries of the school. Classroom sections are at capacity, and programs are in spaces that are too small for their needs. This is obvious in the Music Department and in many cooking, art, and lab classrooms. The Special Education room that housed the multi-needs students was a safety risk. Moving it caused a ripple effect by dismantling an essential computer lab. Furthermore, there are not enough science labs to run as many sections as there should be. Finally, the overall percentage of usage within both schools is higher than what is desired.

**Issue 2** - Shared spaces for community-building, cross-curricular learning, physical activities, and larger group collaboration are absent in District 86 schools.

Aside from the Cafeteria, Auditorium and Little Theater, there are few places where students can gather in large numbers to work together or to perform or present actively. The cafeteria needs to be used for obvious, practical purposes. The other venues are constantly booked and correspond little with the needs of most group work (the seats being locked in place and the lack of quality writing/typing surfaces). Both schools need a location that allows for group learning and collaboration, can be used for performances and activities, and exemplifies the best qualities of spaces designed for learning.

**Issue 3** – District 86 continues to offer its students classroom environments that don't meet the flexible design model, which research confirms is most conducive to the learner and 21<sup>st</sup> Century learning tasks.

Studies have found a strong correlation between the use of comfortable and adjustable classroom furniture and student progress (Barrett et al., 2012). According to MindShift (2012), the classroom that contains rows of desks has become obsolete because the role of the teacher in the classroom has changed from the “lecturer” to a “facilitator” of learning. Learning has become more flexible and tailored to the students in the room; to learn effectively, learning environments need to be as mobile and dynamic as the students who use them (MindShift, 2012). A classroom should consist of areas that are conducive to different types of learning. For instance, modern classrooms should provide soft places where students can read and include desks or tables that can be easily moved to facilitate collaboration and group work. In short, the learning environment can enable students to be engaged learners; the spaces need to inspire students to solve problems creatively; and the spaces should provide choice for students with varying learning styles and needs (21st Century Learning Environments and Scholastic.com: “Establish informal furniture arrangements where students can sit on soft chairs or pillows, or lounge on the carpet”).

“Flexibility” is a recurring theme in classroom design. The team found multiple articles that suggest furniture that is moveable—the desks, chairs, and even the walls (21st Century Learning Environments; Barrett et al., 2012; ACSD Whole Child Website). The idea is to choose a classroom configuration that fosters not only learning relationships, but also cultivates relationships where students and instructors know each other as people—personally as well as professionally (21st Century Learning Environments). The idea is to allow the environment to support the growth of the whole child in multiple facets, not only as a learner (ACSD Whole Child Website). These notions are congruent with John Dewey’s views of schools as small communities that reflect the larger society; by inspiring students with the spirit of service and commitment to the school community, we are training them to be productive citizens when they are able to join society as adults (Dewey, J. The School and Society).

These are called democratic learning environments, places where all voices can be heard equally. Research shows that students are more likely to participate (both verbally and nonverbally) when in a circular or flexible environment, according to Bill Savage, an area researcher on democratic learning spaces and the issues of power relationships in the classroom with respect to furniture design and arrangement. (<http://www.english.northwestern.edu/people/savage.html>). With the current types of desks (heavy chairs attached to desks), moving furniture into democratic learning environments proves to be cumbersome, noisy, and time consuming. Instead, rolling, lightweight chairs with attached desks or lightweight small tables that could be arranged in various groupings for our classrooms would be preferable. According to educator Mark Phillips, “When I did a workshop that included significant student sharing, building community and increasing trust, I found a space with chairs, preferably ones with writing surfaces for note taking. If that wasn't possible, we moved the tables and used the center of the room for chairs. Moveable chairs, with or without writing surfaces, provide maximum flexibility for any kind of teaching.” (<http://www.edutopia.org/blog/the-physical-environment-of-classrooms-mark-phillips>)

**Issue 4** - *Our classroom design, furniture, lighting, painting, and decoration in most cases do not correlate with the findings of the research into classroom spaces.*

Most rooms score well for access to natural lighting, but the type of florescent lighting currently used in the district is not optimal for a learning environment. The team proposes using several classrooms as laboratory spaces to investigate whether the slight increase in cost of different florescent solutions will have a tangible difference in our rooms by improving student concentration and performance.

Work needs to be done in calibrating the heating/cooling system, according to the survey of students at South. While the building itself has seen vast improvements, room-to-room variations were reported, and students reported extremely cold temperatures near the registers in both hot and cold weather in some classrooms. In some rooms during the winter many students complained of freezing air blowing from the registers. If you recall Maslow's Hierarchy of Needs, it is easy to acknowledge how this seemingly small matter has a big impact on students' ability to focus on their academic tasks.

According to the student survey, furniture is the biggest problem with classroom design. Research into "sitting sickness" as well as student preferences show that standing bias desks with stools gives students more options for comfort and posture and that most students actually gravitate towards standing when given the option. It is a myth that children learn best when sitting up straight in hard chairs. "About 75 percent of the total body weight is supported on only four square inches of bone when humans sit up straight in a hard chair, so it is easy to understand how the resulting stress on the buttock tissues causes fatigue, discomfort, and the need for frequent changes in posture. Research supports the common-sense notion that many students pay better attention and achieve higher grades in more comfortable settings" (<http://www.scholastic.com/teachers/article/classroom-organization-physical-environment>).

The Functional Team proposes that each school use several classrooms as laboratory spaces to investigate whether furniture more suited to flexibility will work for students, who vary in size from 5'0" and 80 lbs to 7'0" tall and 300 pounds. Also, we should see whether the option for standing or mobility from sitting to standing during the course of a 50 minute period benefits our students. Standing desks for staff have the potential to improve their posture and comfort, as well.

Research in British schools revealed that aesthetic design was the single most substantial contributor to score improvements when it comes to issues of design. Our teachers currently have no control over some aspects of design, such as a darker painted focus-wall at the front, which have been shown to be important. Colors also influence concentration and mood. Another field of research focused on the impact that nature has on learning and mood. Outdoor learning spaces, such as garden classrooms, are finding their way into innovative schools. Simply providing South's students with the opportunity to eat lunch in a courtyard like their peers at Central can make the school a more vibrant, upbeat place. Providing bright, comfortable shared collaborative spaces in corners of the hallways, places where students could relax before school or where classes could go to work in groups, would be a welcome addition to our schools. In remodeled and newly built high schools, such spaces are included. They frequently utilize plants and high ceilings, and windows or pleasant lighting to provide an optimal environment to learn and to create in. Dark, closed, drab spaces don't encourage creativity or energetic debate. Research sources on this topic include: <http://www.healthline.com/health/importance-plants-home>; <http://www.mnn.com/health/healthy-spaces/photos/15-houseplants-for-improving-indoor-air-quality/a-breath-of-fresh-air>; <http://m.huffpost.com/us/entry/2992014>, and <http://ellisonchair.tamu.edu/health-and-well-being-benefits-of-plants/#.VOefqYY76c1>.

Finally, most these classroom features that are important according to research, such as the presence of plants and the absence of clutter, are likely unknown or under-appreciated by teachers. The team wants to share the research so individual teachers would be empowered to improve their classroom spaces. Again, we need to allow some teachers in traditional classrooms an opportunity to experiment with design options and expose those teachers to research on effective design so that we can see how modifications to the rooms influences student performance on a small scale.

**Issue 5** – *District 86 classroom spaces need to be upgraded for the current and future technology teaching and learning needs.*

The technological assets of many rooms meet neither current needs nor future potential needs. Currently, most rooms have too few areas where students can charge the devices that they use on a regular basis. Even students who conscientiously charge phones the night before rightfully explain that after a day of classes and an evening of athletic practice and activities, they can't phone home from the bus to get picked up from track meets because their phones left home at 6:45 in the morning. In the near future, with the possibility of 1:1 technology, we need to design smart solutions and test them, such as a standing counter for students using plugged-in computers and charging accessories. Throughout the building we have cords dangling from ceilings or extension cords dangerously crossing floors. This causes significant safety risks, especially in overcrowded classrooms at Central.

### **Conclusion**

A few classrooms in each building need to be designated as spaces to explore advances in classroom design. These spaces will need funding for lighting, furniture, wiring, and an easement of painting restrictions. The teachers using such rooms will also need to report on what works best and have some formal community structure to share ideas and report results. Obviously, teachers with a substantial interest in classroom design should be working in these spaces.

### **Contributors:**

*Functional Team Champion:*

Steve Moore, English Teacher, South

*Steering Committee Member:*

Pam Bylsma, Assistant Superintendent for Academics

*Community Member:*

Anne Mueller, Former 181 Board Member

*District 86 Faculty and Staff:*

Robyn Corelitz, English Teacher, Central

Vince Doran, Business Teacher, South

Martha Maggiore, District Office Administrative Assistant

Tracy McDonald, Science Teacher, South

Megan Parker, English Teacher, South

James VanDenburgh, World Language, South

Kristin Wimsatt, English and Psychology Teacher, South

*District 86 Student:*

Elle Bergevin, South Student, Class of 2016

Meghan Lowery, South Student, Class of 2018

*District Architect:*

Jeff Huck, ARCON Associates

*What we're seeing in articles on flexible design is mostly about the use of the interior space to create conversation corners and standing work-counter stations generally using the existing space.*



# Classroom Space Team Needs List

## Building Themes

1. The Library should be central to the building, focused on instruction, and supportive of collaboration of multiple sized groups;
2. Teaming Pockets should be scattered throughout each building providing shared space for community-building, cross-curricular learning, physical activity, and larger group collaboration. These spaces should be flexible and accommodate a variety of group sizes from small up to multiple classrooms, guest speakers, student presentations, etc.;
3. Commons spaces (hang-out zones) should be provided accommodating student use before, during and after school. Spaces should offer a variety of seating and table options for individuals and small groups, and should provide device charging stations;
4. Travel times from remote academic wings to the Cafeteria should be minimized;
5. Courtyards and other outdoor spaces should be thought of an asset that can support learning. Opportunities to engage the Courtyards and outdoor areas should be identified.

## Educational Program Needs

### Central HS

1. The available teaching spaces at Central HS are currently scheduled at +/- 90% efficiency with almost no flexibility. Typically, high schools are scheduled closer to 80%, with 85% being considered a very efficiently scheduled facility. For the 2015/2016 school year, the Administration has identified a need for +/- 8 additional teaching spaces in order to keep the scheduling efficiency at roughly the same level, with the desired class offerings;
2. To reach a more desirable efficiency level closer to 80%, a deficiency of 22 Learning Spaces has been identified as follows:
  - 11 General Classrooms (4 English, 2 Math, 1 Business, 2 World Languages, 1 Health, and 1 ELL);
  - 4 Science Labs + 2 Prep rooms;
  - 1 Visual Arts Lab;
  - 1 Digital Arts Lab;
  - 1 Drivers' Ed. Classroom;
  - 1 Technical Ed. Arch/Eng Production Lab;
  - 3 Special Education Classrooms.

### South HS

1. The available teaching spaces at South HS are currently scheduled between 80 and 85% efficiency with considerable flexibility. For the 2015/2016 school year, one teaching space will free up when the ELL program transfers to Central HS, and the need for one additional space has been identified for FACS.

## Learning Environment Themes

1. Flexible Furniture - Learning spaces should incorporate flexible furniture systems that support multiple learning configurations, are easy to manipulate, and are quiet when moved. Several classrooms should be identified for use as a test case to try-out flexible furniture options and their impact on learning;
2. Natural Light - All learning environments should receive natural light unless specifically deemed inappropriate for the activity (ex: Video Production, Photo Lab, etc.);
3. Artificial Lighting - Should work with natural lighting sources to avoid glare while providing uniform and appropriate light levels. Dimming lights should be provided as required by specific uses (ex: Special Education, Art, etc.) Several classrooms should be identified for use as a test case to try-out fluorescent lighting options and their impact on learning;
4. Color - Opportunities to introduce color through paint, materials, or images should be identified throughout the building corridors in support of way-finding, teaming, and commons areas. Opportunities should be identified within the learning environments where the introduction of color can enhance the space. Several classrooms should be identified for use as a test case to try-out color options and their impact on learning;
5. Temperature Control - Temperature levels have a significant effect on students' ability to focus and be productive. All learning spaces should have appropriate temperature levels with a narrow range of individual adjustment.





# Classroom Space Team

## **CENTRAL HIGH SCHOOL**

### **COMPONENT 1 - Additional Learning Spaces**

A 36,000 square foot addition (25,000 square foot of Learning Spaces + a 50% grossing factor for circulation, building components, etc.) providing an additional 22 Learning Spaces;

### **COMPONENT 2 - Teaming Pockets**

Creation of 5 Teaming Pockets that connect two floors while offering flexible opportunities for teaming, student presentations, guest speakers, supports a variety of group sizes, includes device charging stations, and engages the courtyard and outdoors as a tool for learning.

Pocket A - Located near the south science labs

Pocket B - Located near the courtyard

Pocket C - Located north science labs

Pocket D - Located near the pool

Total area of heavy renovation is 3,400 square foot. Total area of additions is 5,800 square foot.

### **COMPONENT 3 - Reduced Travel Times with a Student Commons**

The January 2011 MFP increased travel times to the Cafeteria for all students by placing the serving lines between the Auditorium and Field House, remote from Academics. Component 6 keeps the Cafeteria serving lines in the center of the building and provides a reduced travel time route from the remote 2<sup>nd</sup> floor academic areas to the Cafeteria and serving lines via a new 2<sup>nd</sup> floor Commons.

A Commons corridor is created along the west side of the Library providing soft seating areas / collaboration spaces. The Commons and Library are separated by transparent collaboration rooms. The commons connects to the existing stair within the Cafeteria.

The west portion of the cafeteria is separated from the rest of the Cafeteria with operable glass walls or doors allowing this area to engage the courtyard as an asset before, during, and after school, with the ability to close off the rest of the dining area when appropriate. Component 3 assumes Faculty Dining is relocated.

The 2<sup>nd</sup> floor Commons extends over the Cafeteria roof to connect with the E/W corridor outside of the Special Education offices, again providing a shortened travel time for the Library from the SW corner of the building.

An addition over the Cafeteria roof replaces the Library space captured by the 2<sup>nd</sup> floor Commons. Includes 2,200 square feet of light renovation, 5,700 square feet of heavy renovation, and 6,000 square feet of addition.

As part of a Student Services expansion into the courtyard, and adjacent to proposed Teaming Pocket \_\_\_\_, a Councilors' Commons is created providing a safe, quiet zone for students to work independently, receive help from Student Services, or "hang-out before, during, and after school. The addition into the courtyard related to just the Councilors' Commons is +/- 1,200 square feet;

### **COMPONENT 4 - Flexible Furniture**

A replacement of the furniture in +/- 145 learning environments (classrooms + Library) with flexible furniture supporting multiple configurations, ease of re-configuration, and reduced noise. Establishment of a standard for expansions;

### **COMPONENT 5 - Temperature Controls**

Modifications to the existing mechanical systems need to be made to provide better temperature control throughout the building. See Learning Environment Theme 5 from the Needs section of this report;

### **COMPONENT 6 - Color**

Identify 50,000 square feet of existing corridor and classroom wall area to receive accent paint colors in support of way-finding, teaming, and commons areas;

### **COMPONENT 13 - Advances in Classroom Design Study**

Three classrooms should be identified as ongoing test case classrooms for the purpose of exploring advances in classroom design in the areas of lighting, flexible furniture, flexible walls/wall types, technology and wiring, color and decoration, and other variables identified in the future as having a potential impact on the learning environment;

## **SOUTH HIGH SCHOOL**

### **COMPONENT 7 - Teaming Pockets and Councilors' Commons**

As part of a larger strategy of relocating and expanding Student Services, Component 7 relocates Student Services to a second floor classroom wing providing opportunities for multiple Teaming Pockets and a Councilors' Commons.

Includes:

- A) A 3,000 square foot medium renovation to the administration suite, re-planning the existing space and expanding it north to the Black and Gold conference room;
- B) A 5,000 square foot medium renovation converting Student Services spaces into general classrooms;
- C) An 8,700 square foot medium renovation converting classroom space into Student Services;
- D) A 3,200 square foot heavy renovation converting a classroom, storage, stair, and corridor into 2 Speaker/Collaboration areas connecting 2 floors;
- E) A heavy renovation to create an enclosed, fire-rated, exit stair connecting 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> floors;
- F) A 13,000 square foot 2<sup>nd</sup> floor addition to replace classrooms converted to Student Services;
- G) A 500 square foot in-fill addition immediately north of Office 221, to create a corridor connection to the main N/S corridor from the new Counselors' Commons;
- H) A 650 square foot medium renovation to re-plan the existing Health Clinic;
- I) A 600 square foot heavy renovation of existing team showers and storage for an expansion of the Health Clinic and to convert group showers into single use showers;
- J) A 1,000 square foot heavy renovation of one of the Tech office areas to a Speaker/Collaboration area connecting the 1<sup>st</sup> floor to the 2<sup>nd</sup> floor;
- K) A 1,200 square foot heavy renovation converting classroom and corridor space to a Speaker/Collaboration area connecting the 3<sup>rd</sup> floor to the 2<sup>nd</sup> floor.

### **COMPONENT 8 - Reduced Travel Times and a Student Commons by Relocating the Cafeteria**

Component 8 considers a proposed re-planning of the Cafeteria within the context of the overall building, and building circulation, with the goals of reducing travel times, creating a student commons, and engaging the courtyard.

Assumptions and Planning:

- A) The Cafeteria is relocated to the courtyard, including 11,000 square feet of addition in the courtyard and 7,000 square feet of heavy renovation of vacated 2D Art Labs and FACS labs (in lieu of an in-place 14,500 square foot heavy renovation.) Included is an expansion of the existing washrooms, renovation of a storage room into a concessions stand, and a widening of the East/West corridor south of the Auditorium to relieve congestion and create a Commons Area;
- B) The Cafeteria takes advantage of the courtyard creating a relationship to the outdoors in line with Central High School;

- C) The Cafeteria is now in close proximity to support events in the Auditorium and Gym;
- D) Student travel times are reduced by moving the serving lines to the center of the building;
- E) A 7,000 square foot FACS wing is built replacing the undersized existing spaces and adding additional needed spaces. See the CTE Team report for how this supports their Team's needs;
- F) A relocation of the Cafeteria frees up the existing space and provides an opportunity for the Fine Arts programs to be grouped and expanded within a Fine Arts wing. See the Arts Team report;
- G) Allows for a same-floor expansion of Special Education and a same-floor relocation of DHH. See the Special Education Team Report for how this supports their Team's needs;
- H) An opportunity is available to create a Collaboration/Speaker area connecting the 1<sup>st</sup> and 2<sup>nd</sup> floors (See Component 7);

### **COMPONENT 9 - Flexible Furniture**

A replacement of the furniture in +/- 130 learning environments (classrooms + Library) with flexible furniture supporting multiple configurations, ease of re-configuration, and reduced noise. Establishment of a standard for expansions;

### **COMPONENT 10 - Color**

Identify 50,000 square feet of existing corridor and classroom wall area to receive accent paint colors in support of way-finding, teaming, and commons areas;

### **COMPONENT 11 - Temperature Controls**

Modifications to the existing mechanical systems need to be made to provide better temperature control throughout the building. See Learning Environment Theme 5 from the Needs section of this report;

### **COMPONENT 12 - Advances in Classroom Design Study**

Three classrooms should be identified as ongoing test case classrooms for the purpose of exploring advances in classroom design in the areas of lighting, flexible furniture, flexible walls/wall types, technology and wiring, color and decoration, and other variables identified in the future as having a potential impact on the learning environment.

