



M A N S F I E L D I N D E P E N D E N T S C H O O L D I S T R I C T

NEW ELEMENTARY SCHOOL #20

Huckabee



New Elementary School #20

Mansfield Independent School District

Schematic Design Presentation

Huckabee

ARCHITECTURE | ENGINEERING | MANAGEMENT

4521 South Hulen, Suite 220
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New Elementary School #20

Mansfield Independent School District

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Vernon Newsom	School Superintendent
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Miller Beaird	MISD- Principal
Elna Davis	MISD- Principal
Sharon Ferguson	MISD- Principal
Lou Spiegel	MISD- Associate Superintendent of Finance/Government Affairs
John Perdue	MISD- Director of Facilities
Jane Melms	MISD- Director of Special Services
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Ray Jaksa	MISD- Chief Technology Officer
John Schmitt	Huckabee CPS
Bruce Morris	Huckabee CPS
Chris Huckabee	Huckabee & Associates
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Mansfield Independent School District

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New Elementary School #20

Mansfield Independent School District

Project Narrative

Project Overview

As the cities of Mansfield and Arlington have continued to grow, large parcels of land suitable for developing schools have become increasingly difficult to acquire. Selected sites often have large areas that are unusable because of drainage or detention requirements. The result can be compromised traffic patterns, minimal expansion areas for portable units and classroom additions and non-contiguous play areas. The Design Team reviewed these considerations along with the significant construction cost savings due to building design efficiencies and concluded that it was appropriate (as permitted within the MISD Education Specifications) to move to a two story design solution. As a precedent, the recently completed Erma Nash Elementary School building utilized a partial two story or split level building concept in its design. The matter was submitted to Administration for review and preliminary approval.

The compact two-story design is based on an "H" design layout. Academic classrooms on both floors encompass a terraced front entry court and a cafeteria/gym at the back. The first floor wings will house (1) - Pre-K classroom (860 s.f.) , (7) - K classrooms (860 s.f. each), and (7) 1st grade classrooms (840 s.f. each). The upper floor wings will house (7) - 2nd grade classrooms (760 s.f. each), (7) 3rd grade classrooms (760 s.f. each) and (7) 4th grade classrooms (760 s.f. each). See Space Program Analysis for further details.

The library and administration functions are at the center of the first floor entry- easily accessible for both students and for after-hours events. At the back of the facility, a secondary entrance from parent drop-off provides access to the cafeteria and gymnasium. Art and music are also located in this core activity area providing sound isolation from the academic areas but centrally located to all students. Core areas can also be secured for after-hour events from the adjoining academic classroom wings by locking strategically located doors on the main corridors.



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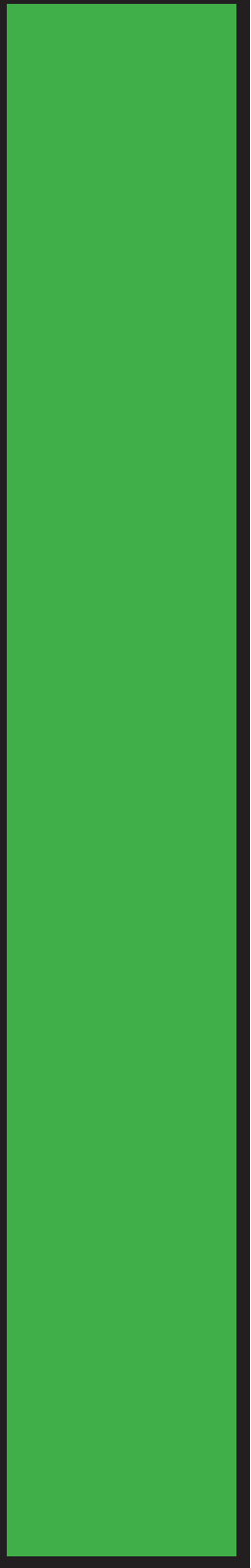
FOR SECURITY PURPOSES, THE SITE/FLOOR PLANS HAVE BEEN REMOVED;
PLEASE CONTACT THE DISTRICT FOR A COPY.



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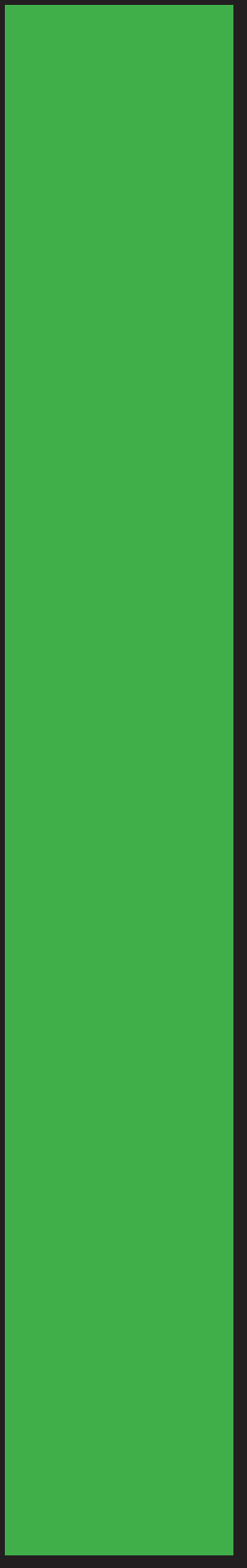




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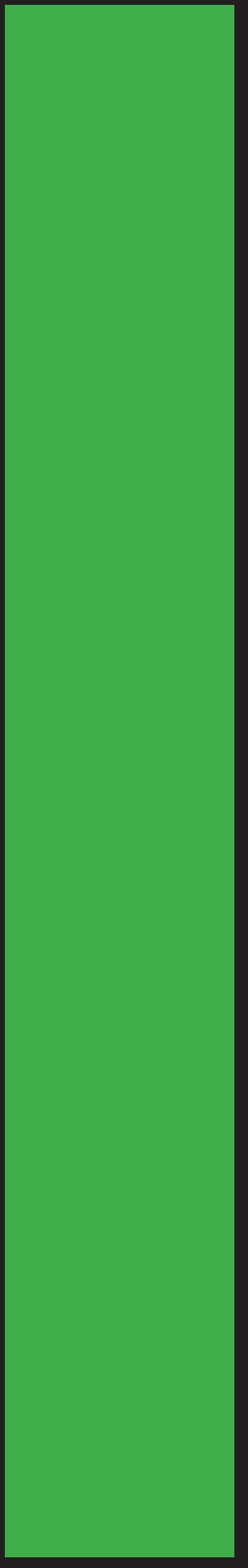




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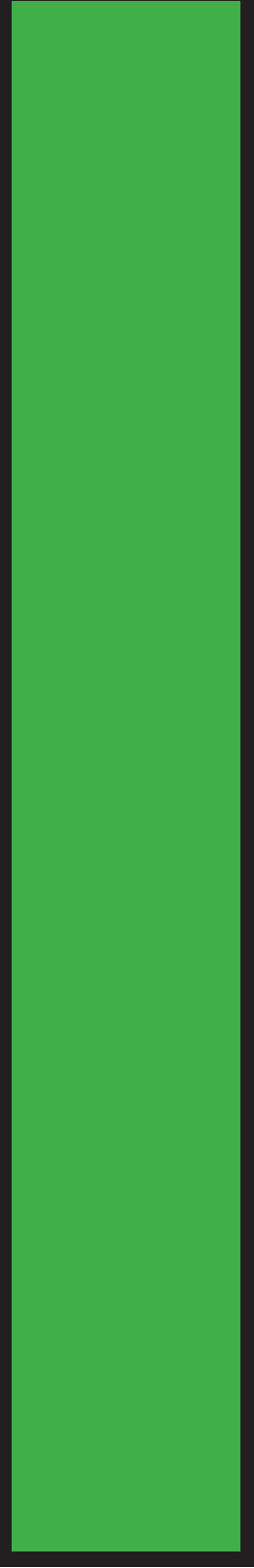




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Perspective: Overall

Perspective: Overall



Perspective: Main Entrance

Perspective: Main Entrance

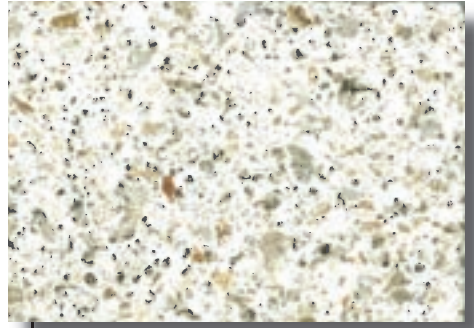


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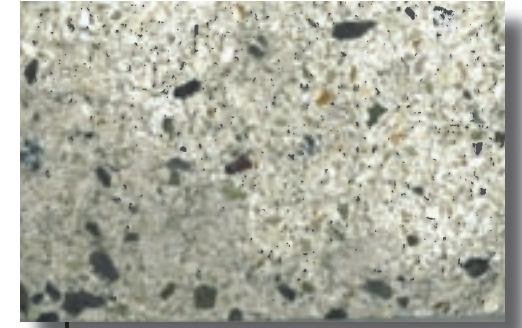
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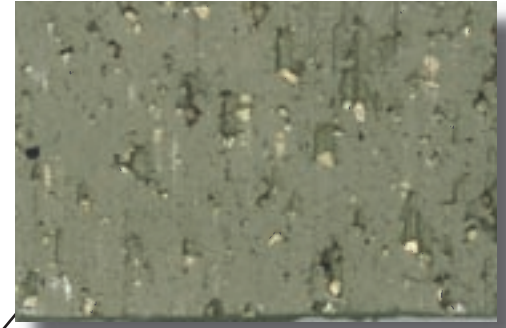
Field Brick



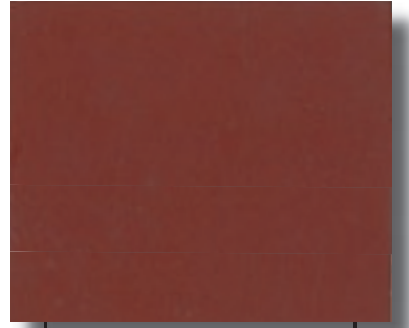
Burnished CMU



Split-face CMU



Accent Brick



Roof & Metal Trim



Glazed Masonry (Accent)

Glass Block

Building Materials Overview

Building Materials Overview



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New Elementary School #20

Project Overview

General:

The Elementary School building design is the twentieth in a series of elementary schools planned to accommodate the current growth of the Mansfield ISD. The Elementary School #20 will house 800 students and will be approximately 78,680 square feet in area. The facility will be located in the City of Arlington on an undeveloped 12-acre site on the southeast corner of the intersection of Ledbetter Road and Harris Road. The property is zoned Agricultural which permits educational facilities as an intended use. Adjacent properties to the south and to the east are either existing or proposed residential lots.

Roads:

Harris Road extension, an undivided 4-lane road, will extend along the north edge of the site. Ledbetter Road currently runs along the west side of the site connecting down to Russell Road. City street improvements to Ledbetter Road are not currently scheduled as part of the city's development plan. The building has been sited in the middle of the site to maximize the effectiveness of entry access points to the facility.

Site Topography:

The topography of the proposed site is crowned from the west boundary (690 ft. msl) falling 20 ft. across the site to the east (670 ft. msl). An existing pond (stock tank) and a moderate growth of mesquite and scrub trees populate the site especially along existing fence lines. An existing drainage swale runs west to east across the property at approximately a 2 percent gradient. This surface water will be redirected along the south edge of the property to a water detention facility along the east edge of the property that outflows midway along the property line to the adjoining property to the east.

Site Layout:

The Design Team reviewed several different site and building configurations. It concluded that the building entrance or "frontage" should be oriented to the north towards Harris Road. This selected site layout provides not only better access opportunities but also minimizes the cross traffic of children with internal roads and parking lots. Play fields and playgrounds are immediately adjacent to the school rather than being subdivided by drop-off lanes.

Particular attention was given to the design of on-site vehicular traffic flow including adequate parking loading zones for parent pick-up and drop-off. The Design Team concluded that the best use of the site was to provide bus-drop off at the "front" of the building (accommodating up to (8) 40 ft buses) while maximizing the parent drop-off and cueing lanes along the east and south portions of the property to the "back" of the building. Both the gym and cafeteria would provide staging for students for the pick-up and drop-off area.

Three parking lots serve the facility. A visitor's lot at the front of the building will accommodate 45 standard stalls and two accessible stalls. Staff parking and additional parking at the back of the building for after-hours events will provide a total of 103 standard stalls and five accessible stalls. Two additional parking spaces and one accessible stall are included at the service drive for maintenance and truck deliveries. The total on-site parking will accommodate 150 standard stalls and eight accessible stalls.

Building Design:

As the cities of Mansfield and Arlington have continued to grow, large parcels of land suitable for developing schools have become increasingly difficult to acquire. Selected sites often have large areas that are unusable because of drainage or detention requirements. The result can be compromised traffic patterns, minimal expansion areas for portable units and classroom additions and non-contiguous play areas. The Design Team reviewed these considerations along with the significant construction cost savings due to building design efficiencies and concluded that it was appropriate (as permitted within the MISD Education Specifications) to move to a two story design solution. As a precedent, the recently completed Erma Nash Elementary School building utilized a partial two story or split level building concept in its design. The matter was submitted to Administration for review and preliminary approval.

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Architectural & Structural Systems

General Architectural:

The main Elementary School building is a two-story facility containing the academic classroom wings. The core administration / library area is a single story terraced back to the two story facility. The cafetorium will be 1-1/2 stories. The gymnasiums will be a two story space. The exterior wall construction shall be concrete masonry unit exterior walls with a brick veneer. All exterior walls will be load bearing. The main interior corridor wall for the facility will be masonry with a brick face or a tile equivalent. Other public spaces and corridors shall be standard gypsum wall construction with tile wainscot or equivalent approved material.

General Structural:

The first floor shall be a suspended structural floor system on piers and grade beams. The second floor will be a composite deck system. All roofs will be in accordance with MISD Design Manual. In general, roofs to be low sloped built-up roofing (20 year warranty) on 2 layers of insulation board on 1 1/2" metal deck. Masonry and structural steel framing will support the roof and second floor at the perimeter. The gymnasium roof structures will be steel joist girders with 1 1/2" acoustical steel roof deck. Perimeter walls will be brick veneer or split face CMU with concrete masonry unit back-up.



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Finishes:

Classrooms: Main area-Carpet, Wet area- VCT or equivalent, rubber base, painted walls, 2' x 2' lay-in ceilings.
Corridors and Cafeteria: Durable, operationally efficient material (to be determined) (Alternate: Terrazzo floors & quarry tile base), face brick walls, 2' x 2' lay-in ceilings.

Large Student Restrooms: Durable, operationally efficient material (to be determined) (Alternate: Terrazzo floors & quarry tile base), 8" x 8" full height ceramic tile walls; 2' x 2' lay-in ceilings.

Library, Administration Offices: Carpet tile, rubber base, paint/face brick walls, 2' x 2' lay-in ceilings.

Storage Rooms, Art Labs, and Computer Labs: Vinyl tile floor or equivalent, rubber base, painted walls, 2' x 2' lay-in ceilings.

Kitchen and Serving Area: Poured resinous flooring and integral coved base, ceramic tile walls in Serving area, epoxy painted walls at Kitchen, 2' x 2' vinyl covered gypsum board ceiling.

Athletic Dressing Rooms: Vinyl tile floor, rubber base, epoxy painted walls, 2' x 2' high humidity ceiling tiles, showers and wet areas to be ceramic tile floors and walls and will have plaster ceilings.

Gymnasiums: Rubber floors & base, painted walls, exposed steel roof structure painted.

Platform: Pine wood floor and base, painted walls, painted exposed steel structure and painted metal roof deck.

Mechanical and Electrical Systems

HVAC Systems:

All occupied spaces will be served by unitary HVAC equipment, primarily electric drive cooling, gas-fired heating rooftop units for maximum flexibility of independent use and in compliance with MISD Standards.

Supply air will be distributed to each room through ceiling diffusers (typically two per classroom) with 24" x 24" face panels designed to fit in a lay-in ceiling grid. Supply ducts will be individually tapped for each diffuser, with each tap fitted with a manual volume damper for balancing and then extended through properly sized round branches and/or flexible duct (6' maximum for flex) to the diffuser. Return air grilles will be placed in the ceiling grid of each room.

Ventilation: Exhaust systems will be provided for Toilet Rooms, Janitor's Closets, Kitchen Exhaust Hoods, Dishwashers, Art Kilns, and general relief to insure intake of minimum ventilation for IAQ, etc.

Controls & Automation: Complete systems of DDC/EMS controls and automation shall be provided by an approved control subcontractor, and shall be "Auto Matrix" or equal, with stand-alone PC based Central Control Station capable of modem dial-up interface with the existing District-wide control network.

Plumbing & Fire Protection Systems:

General: Complete systems of sanitary waste & vent piping and roof drainage piping will be provided throughout the building and grease interception systems for kitchen areas. Cold water will be distributed throughout the building to all fixtures, but hot water will be limited to kitchen, shower, janitor, and special use (Nurse, Teacher's Lounge, Office Toilets, etc.) facilities. Gas will be extended to Kitchen Equipment, Kitchen & Shower Water Heaters, Boilers, Rooftop HVAC Units. The entire building will be provided with a light/ordinary hazard wet-pipe fire protection sprinkler system. Sub-soil drainage will be provided as appropriate.

Piping:

Sanitary and grease collection waste & vent piping, and roof drainage piping will be standard weight cast iron, with gasketed hub and spigot joints underground or under floor slabs, and with heavy-duty no-hub gasketed connectors above the first floor line. Vent piping will be polypropylene in non-plenum areas and polyvinyl dine fluoride in plenum spaces, both with socket-fusion fittings. Sub-soil piping will be schedule 40 PVC. Indirect drain piping will be type L hard copper with solder joints.

Hot and cold water piping throughout will be type L hard copper with solder joints, except any piping that has to run below a floor slab will be type L soft copper with NO joints below the floor line.

Gas piping will be schedule 40 black steel, with welded fittings for sizes 2" and larger, and black malleable screwed fittings for sizes smaller than 2", except ALL piping above roof lines will be welded. Underground gas lines will be polyethylene plastic with heat fusion socket joints.

Fire Protection piping will be Class 200 PVC where underground, and black schedule 40 steel with screwed fittings aboveground (lighter weights per NFPA 13 for sizes less than 4" or with roll-grooved fittings).

Valves will generally be flanged 125# iron body brass trim gate valves in lines larger than 2", and 125# screw-end bronze body ball valves for 2" and smaller sizes.

Plumbing Fixtures:

Plumbing fixtures generally will be commercial grade white vitreous china, with floor-mounted flush valve 1.6 GPF water closets with open-front seats, wall-hung lavatories with concealed arm carriers, and wall-hung siphon-jet flush valve 1.0 GPF urinals with chair carriers, all with heavy duty CP brass trim and loose-key stops with handicap protection. Standard and TAS/ADA mounting heights as appropriate.

Mop basins will be pre-cast terrazzo with wall-braced hose-end hot & cold-water spout and stainless steel rim guards. Single and double-compartment sinks for various purposes will be type 302 satin-finish stainless steel with integral mounting rims and sound deadening undercoat. Electric Water Coolers will be "barrier free" type, wall-hung, with stainless steel tops and push bar front and side operators. Showers will be wall-mounted, anti-scald, mixing valve type with vandal-proof head and stainless steel cover, and with hot water supplied through limited access temperature blending units.

Water heaters for Kitchen and Shower use will be gas-fired ASME rated storage type with glass-lined tanks, forced draft burners, and with gas inputs limited to 199,000 Btuh to avoid state inspection as "Boilers", manifolded as necessary to meet load requirements, and provided with circulating piping loops and line-mounted pumps. Water heaters for minor or scattered use will be under-counter electric type.

Electrical Systems:

Lighting, wiring, fire alarm, smoke detection, clock and bell system, security system, and communication systems will be provided as set forth in the MISD Design Manual.



800 Capacity Elementary		Current Program			
ID	Space / Function	No. Stations	Unit Area	Net Area	Capacity
1 INSTRUCTIONAL SPACES		22			
Classrooms					
1.00	Pre-Kindergarten	1	860	860	22
1.01	Pre-Kindergarten Toilet (Shared w/ PPCD)	0	48	0	0
1.02	PPCD	1	860	860	22
1.03	PPCD Toilet	1	90	90	0
1.04	Kindergarten	7	860	6,020	154
1.05	Kindergarten Toilet	7	48	336	0
Subtotal				8,166	198
1.10	First Grade	7	840	5,880	154
1.11	Second Grade	7	760	5,320	154
1.12	Third Grade	7	760	5,320	154
1.13	Fourth Grade	7	760	5,320	154
1.14	Rotation Classroom	1	760	760	0
Subtotal				22,600	616
Classroom Support Spaces					
1.20	- Student Restrooms	3	450	1,350	0
1.21	- Book & Instructional Materials Storage	5	200	1,000	0
1.22	- Janitor Closets (See also Main Cust.)	1	40	40	0
1.23	- Faculty toilets	5	50	250	0
1.24	- Electrical Closets	4	90	360	0
1.25	- Network Wiring (see also MDF)	1	75	75	0
Subtotal				3,075	0
Subtotal Instructional Spaces				33,841	814
2 SPECIAL PROGRAMS					
2.01	Small Group Instruction Room	4	400	1,600	0
2.02	Special Populations Classroom	1	700	700	5
2.03	Special Population Life Skills	1	900	900	10
2.04	Life Skills Toilet & Storage	0	0	0	0
2.05	Motor Lab	1	300	300	0
2.06	Toilet	1	150	150	0
2.07	Storage	1	150	150	0
Subtotal				3,800	15
2.20	Art	1	800	800	
2.21	Storage	1	150	150	
2.22	Music	1	800	800	
2.23	Computer Lab	0	900	0	
Subtotal				1,750	0
Subtotal Special Programs Spaces				5,550	15

800 Capacity Elementary		Current Program			
ID	Space / Function	No. Stations	Unit Area	Net Area	Capacity
3 LEARNING CENTER					
3.01	Library	1	2,630	2,630	
3.02	Workroom	1	180	180	
3.03	Library Office	1	190	190	
3.04	AV Storage	0	0	0	
3.05	Computer/on line reference &lab	1	900	900	
Subtotal Learning Center				3,900	0
4 PHYSICAL EDUCATION					
4.01	Gymnasium	1	4,368	4,368	
4.02	Office	1	100	100	
4.03	Storage	1	150	150	
4.04	Gym / Cafetorium Restrooms	2	360	720	
Subtotal Physical Education				5,338	0
5 TEACHER SUPPORT SPACES					
5.01	Faculty Workroom	1	340	340	
5.02	Faculty Lounge	1	400	400	
5.03	Faculty Restroom	1	50	50	
Subtotal Teacher Support				790	0
6 FOOD SERVICES					
6.01	Dining	1	3,300	3,300	
6.02	Chair Storage	1	250	250	
6.03	Stage	1	600	600	
6.04	Ramp to Stage	1	185	185	
6.05	Snack Bar	1	62	62	
6.06	Main Custodial / Jan.	1	100	100	
6.07	Kitchen	1	2,300	2,300	
Subtotal Food Services				6,797	0



800 Capacity Elementary		Current Program			
ID	Space / Function	No. Stations	Unit Area	Net Area	Capacity
7 ADMIN. & SPECIAL SERVICES					
Special Services					
7.01	Clinic	0	0	0	
7.02	Reception, Waiting Area	1	97	97	
7.03	Exam & Cot Area	1	225	225	
7.04	Office	1	90	90	
7.05	Toilet	1	55	55	
	Subtotal			467	0
7.20	Counselor	1	240	240	
7.21	Diagnostician	1	200	200	
7.22	Itinerant Program Spaces	1	200	200	
7.23	ISS Program	1	180	180	
	Subtotal			820	0
	Subtotal Special Services			1,287	0
Administration					
7.30	Reception/ Office	1	430	430	
7.31	Principal	1	200	200	
7.32	Secretary	1	120	120	
7.33	Vice Principal	1	200	200	
7.34	Conference Room	1	250	250	
7.35	Attendance	1	120	120	
7.36	Vault	1	120	120	
7.37	Workroom	1	260	260	
7.38	Storage	1	200	200	
7.39	Media Server (MDF)	1	150	150	
7.40	Electrical	1	65	65	
7.41	Admin. Staff Restrooms	2	50	100	
7.42	Janitor	1	50	50	
	Subtotal Administration			2,265	0
	Subtotal Admin. & Special Services			3,552	0
8a GENERAL SPACES					
8.02	Main Mechanical	1	325	325	
8.03	Main Riser	1	45	45	
	Subtotal Administration			370	0
8b	NET AREA (Subtotal)			60,138	829
9 GENERAL SPACES					
9.04	Corridors, Lobby, Storage, Mechanical, Walls, Ramp to stage, etc.			18,541	
9	BUILDING TOTALS		Total	78,679	829

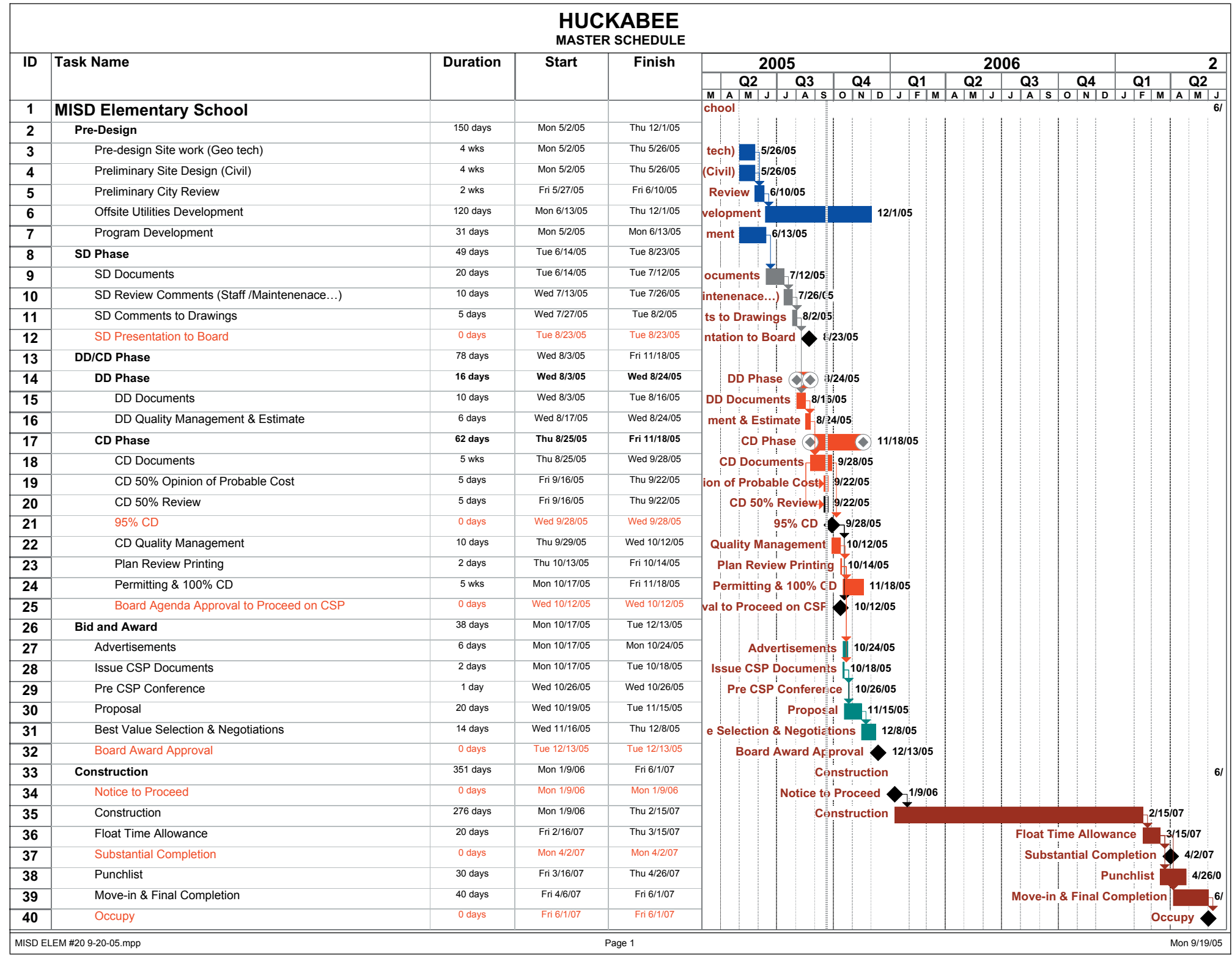
Space Program (continued)



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Schedule