

NARRATIVE REPORT

1.0 BUILDING INFORMATION

Shepperd Arena was originally constructed in 1951; a 1974-1975, two-phase addition extended the building to the north and the west. During this addition, the northeast corner of the 1951 building was also renovated.

Shepperd Arena is a single-story, 30,272 ft² building with a two-story arena on the west end of the building. Shepperd Arena primarily serves as office areas and work areas for livestock personnel.

The interior floor finishes included concrete, floor tile, and carpet; the interior wall finishes included gypsum wallboard, brick, concrete block, reinforced fiberboard, and plaster; and the interior ceiling finishes included ceiling texture, hard plaster, metal, concrete, and reinforced fiberboard. The roofing system is a flat rubber-membrane roof and the exterior of the structure is brick.

The piping systems were insulated; fiberglass insulation (without hard fittings) is located throughout the building, aircell insulation (with hard fittings) is located in the 1951 building, and mag block insulation (with hard fittings) is located in the renovated section of the 1951 building. Steam enters the building via a tunnel into room 111A and domestic water enters the building via a tunnel into room 100A. HVAC systems located in the building consisted of steam unit heaters and radiators.

2.0 ASBESTOS SURVEY INFORMATION

Shepperd Arena was surveyed as part of a larger project on NDSU's Fargo, ND Campus. This report is part of "Volume 4" of a nine volume series. This report includes building specific information only; please refer to the opening section of "Volume 4" for methodologies, definitions, and other pertinent supporting information.

A total of 56 samples were collected from suspect asbestos-containing materials (ACM) from Shepperd Arena on June 27, 2007 and an additional 6 samples were collected on November 19, 2007. Laboratory analysis results indicate **13 of these samples tested positive for asbestos.**

2.1 Suspect Materials Identified and Sampled

Hard Plaster- Skimcoat (2 types)	Hard Plaster- Basecoat (2 types)
Ceiling Texture	Hard Plaster- Monocoat (3 types)
Gypsum Wallboard	Joint Compound
Floor Tile	Wall Surfacing Material (on brick)
Flooring Material (2 types)	Carpet Mastic
Baseboard Adhesive	Window Caulk
Door Caulk	Reinforced Fiberboard Backing
Cooler Insulation (2 types)	Cooler Wall Material
Encapsulant on Neoprene Hard Fittings	Encapsulant on Fiberglass Insulation
Aircell Pipe Insulation	Hard Fitting on Aircell Insulation
Mag Black Pipe Insulation	Hard Fitting on Mag Block Insulation
Exterior Window Glazing	Exterior Fiberboard (window covering)
Exterior Fiberboard Caulk	Exterior Building Seam Caulk (2 types)

Exterior Door Caulk (2 types)
 Sink Undercoating
 Exterior Penetration Putty

Exterior Thermal Door Caulk (2 types)
 Window Sill Material
 Exterior Window Caulk

The Asbestos Bulk Sample Results Table includes asbestos sampling data.

2.2 **Asbestos Containing Materials**

Acoustical Ceiling Texture
 Glass Block Window Caulk
 Aircell Pipe Insulation
 Hard Fittings on Aircell Insulation
 Pink Sink Undercoating
 Exterior Window Glazing
 Exterior Window Caulk
 Exterior Door Caulk

The ACM Locations/ Friable Materials Assessments Table includes ACM locations data.

2.3 **Cost Estimates**

Legend Technical Services Inc. estimates abatement costs (removal & disposal) of ACM for Shepperd Arena as follows:

ACM	QUANTITY	UNIT COST	TOTAL COST
Asbestos Ceiling Texture	2,362 ft ²	\$7.50/ft ²	\$17,715.00
Asbestos Window Caulk	17 ea	\$125.00/ea	\$2,125.00
Asbestos Sink Undercoating	1 ea	\$150.00/ea	\$150.00
Asbestos Window Glazing and Window Caulk	19 ea	\$300.00/ea	\$5,700.00
Asbestos Aircell Pipe Insulation	1,044 ft	\$25.00/ft	\$26,100.00
Asbestos Hard Fittings on Aircell Insulation	95 ea	\$60.00/ea	\$5,700.00
Asbestos Door Caulk	5 ea	\$125.00/ea	\$625.00
Total Estimated Abatement Costs:			\$58,115.00

2.4 **Survey Notes**

Aircell insulation (with hard fittings) is located throughout the 1951 building. LEGEND verified visible quantities of these materials throughout the building. In room 105 (pipe chase for bathrooms 101/107), LEGEND observed aircell insulation running over the ceilings of adjacent rooms. Although not quantifiable due to inaccessible ceilings in these rooms and others, the aircell insulation is there. LEGEND recommends assuming another 250 ft of aircell insulation and 25 hard fittings are running above the inaccessible ceilings in the 1951 building.

Asbestos containing acoustical ceiling texture was identified in rooms 103, 109, and 188. These rooms are located in the southwest corner of the 1951 building; they are office and classroom areas. A review of the data indicates the renovated areas of the 1951 building (102A-102B and 104-104C) would have had similar finishes prior to the renovations. The potential exists that

during the renovations acoustical ceiling texture in these areas may have been present and may have been covered by new finishes. Due to the renovations, LEGEND was unable to verify the existence of the material without causing visible damage. LEGEND recommends assuming the asbestos containing acoustical ceiling texture to be present above the visible ceiling systems in room 102A-102B and 104-104C and inspecting these areas on a room by room basis prior to any renovation or demolition activities that may impact them.

In the renovated areas of the 1951 building, mag block pipe insulation (with hard fittings) was identified. Prior asbestos sampling records, provided to LEGEND by NDSU, indicated the material contained amosite asbestos fibers. LEGEND collected multiple samples of the material; sample analysis indicated the presence of glass and wollastonite fibers in the mag block pipe insulation and the hard fittings. Wollastonite fibers are not a type of asbestos. Misidentifying wollastonite fibers as amosite fibers is considered a common analytical error. LEGEND considers the previous sampling to be a misidentification of wollastonite fibers as amosite fibers, and therefore does not considers the mag block pipe insulation and hard fittings to be ACM.

Asbestos containing exterior window glazing and exterior window caulk was identified on the 1951 building. However, several windows have been concealed under a brown fiberboard on the exterior of the building and by new construction on the interior of the building. It is unknown whether the windows are still present inside the walls, or if they have been removed. LEGEND recommends assuming the windows are still present on the south side of rooms 109 and 111, the east side of room 102A, and the north and east sides of room 104. Each of the potentially concealed windows in these areas should be inspected on an individual basis prior to any renovation or demolition activities that may impact them.

LEGEND TECHNICAL SERVICES, INC.
ACM LOCATIONS/FRIABLE MATERIALS ASSESSMENTS TABLE

LEGEND No. 0700048 (NDSU)
SHEPPERD ARENA (BUILDING A034)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE POTENTIAL	LOW MOD HIGH	ASSES. CAT. ¹	NOTES
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Room 100

Aircell Pipe Insulation	40% Chrysotile	27 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation is in the west end of the room, to the south of the overhead door.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
Hard Fittings on Aircell Insulation	90-95% Chrysotile	4 ea	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		

Room 100C (including the east entryway to 110C)

Aircell Pipe Insulation	40% Chrysotile	508 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation runs east/west down the south end of the room and curves north at the end of the building.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
Hard Fittings on Aircell Insulation	90-95% Chrysotile	44 ea	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		

Room 100D (including the east entryway to 110D)

Aircell Pipe Insulation	40% Chrysotile	281 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation runs east/west down the north end of the room and curves south at the end of the building.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
Hard Fittings on Aircell Insulation	90-95% Chrysotile	30 ea	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		

Room 101 Abated February 2008

Aircell Pipe Insulation	40% Chrysotile	6 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation is supplying a radiator on the north wall.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

* = Non-Friable materials were not assessed

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Room 102A

Pink Sink Undercoating	10% Chrysotile	1 ea	Non-Friable Miscellaneous	N/A*	N/A*		N/A*	The sink is located along the west wall.
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Room 103

Acoustical Ceiling Texture	5% Chrysotile	198 ft ²	Friable Surfacing	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
Aircell Pipe Insulation	40% Chrysotile	8 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation is located along the east wall.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Room 105 Abated February 2008 & January 2009

Aircell Pipe Insulation	40% Chrysotile	114 ft	Friable TSI	Significantly Damaged	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	1	This room is the pipe chase for the bathrooms (rooms 101/107). The aircell insulation is throughout the room.
					Air Erosion	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
Hard Fittings on Aircell Insulation	90-95% Chrysotile	6 ea	Friable TSI	Significantly Damaged	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	1	None.
					Air Erosion	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		

Room 109

Acoustical Ceiling Texture	5% Chrysotile	1000 ft ²	Friable Surfacing	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
Aircell Pipe Insulation	40% Chrysotile	100 ft	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	The aircell pipe insulation is at the ceiling level along the east and south walls.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
Hard Fittings on Aircell Insulation	90-95% Chrysotile	11 ea	Friable TSI	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None.
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

* = Non-Friable materials were not assessed

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Room 188

Acoustical Ceiling Texture	5% Chrysotile	1164 ft ²	Friable Surfacing	Good	Physical	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	6	None
					Air Erosion	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
					Vibration	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Room 200

Glass Block Window Caulk	5% Chrysotile	17 ea	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	N/A*	The glass block windows above the seating areas have asbestos caulk around them. 5 on the west wall and 6 on the north/south walls each.
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Exterior

Window Glazing and Window Caulk	3-5% Chrysotile	3 ea	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	N/A*	Both the window glazing and the window caulk contain asbestos. There are 3 windows by room 100D, 13 by room 100C, and 3 by room 111.
Majority abated May 2015								
Door Caulk	5% Chrysotile	5 ea	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	N/A*	There are 4 doors on the west end of the building and 1 on the south end. The hard white caulk contains asbestos (may be residual).
Abated May 2015								

¹Assessment Categories:

- 1) Damaged or Significantly Damaged TSI ACM
- 2) Damaged Friable Surfacing ACM
- 3) Significantly Damaged Friable Surfacing ACM
- 4) Damaged or Significantly Damaged Friable Miscellaneous ACM

- 5) ACM with Potential for Damage
- 6) ACM with Potential for Significant Damage
- 7) Any Remaining Friable ACM or Friable Suspected ACM

These 3 remain (They are covered up)

End