# **City of Oxford Facilities Master Plan**



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### **Overview**



The City of Oxford, with a 2000 census population of approximately 1,900 is located in Newton County approximately 38 miles east of Atlanta, Georgia. It has been reported by the U.S. Census Bureau that Newton County is one of the top 100 Fastest Growing Counties in the United States. The city is home to Oxford College, located on the original Emory campus, founded in 1836 by the Methodist Church in Oxford, Georgia. The City of Oxford is rich in history and many of the buildings from the nineteenth century have survived to date. It is of upmost importance that

preservation of these buildings is taken into account when planning and developing the growth of this community when such rapid growth has taken place in the county.

The diversity within the city is influenced by the close working relationship that has been established with city officials and faculty and staff of the Oxford College. Oxford College has a long range plan which calls for a continued close working relationship with the City of Oxford. With 600 students in Oxford College and 550 residing in on-campus housing, students create a vibrant counterpart to the working family residents. The college and city must continue to work and rely on each other to provide quality municipal services to all who reside within the City of Oxford.

Armentrout Roebuck Matheny Consulting Group, P.C. (ARMCG) has completed research and review of the existing facilities and services that are currently being provided by the City of Oxford. This research provides the basis for the Long Range Facilities Plan for Oxford. The plan will help position the City for the growth and development which is occurring in the Oxford area while securing the historic character of the town that has helped create an attractive living option for many.



### **Existing Facilities and Service**

The City of Oxford owns several separate facilities as well as parcels of land. The facilities can be grouped into several categories:

- Public Use
  - Municipal
  - ♦ Historic
- Operational Use
- Raw land



The public use facilities are subdivided into two categories; municipal and historic. Municipal facilities are those that the city currently uses to fulfill its administrative and civic duties. Historic structures may or may not currently have on-going use. The municipal properties are:

(M1) City Hall

This structure is a wooden frame structure with handicap access and a drive thru service area. It houses the City Administrative offices and several small conference rooms and offices. It is currently sized adequately to fulfill the functions that the City performs; however storage space is running out.

#### (M2) City Annex

- 1. Fire Hall
- 2. Police Office
- 3. Community Building

This structure originally contained the City Hall, which was moved. It still holds the volunteer fire department, police department and a municipal space for court functions and city meetings. The City is considering the addition of a ladder truck to reach all residence floors of student housing at Oxford College. If this planned purchase is completed, the firehouse will be too small to hold this addition. Furthermore, police headquarters is too small and additional space is required for record storage.

The historic properties are:

(H1) Old Church

This historic structure has been previously restored and currently serves as an operating historic property. It is open for tours on special days and events such as weddings, as well as meetings of the local historic society.

- (H2) City of Oxford Cemetery This property anchors the north end of the city.
- (H3) House adjacent to City Hall This property has just been recently purchased and its condition is unknown.



The operational properties are the public works facilities, which is located at the City Barn. These include:

- (O1) Utility Works office/ Store Room This old, converted residence is in very poor shape and needs to be replaced. It serves as utility personnel office, break area and inventory storage.
   (O2) City Parm
- (O2) City Barn This property consists of several sheds to protect equipment and needs refurbishment. Material is stored inside the fenced, secure area and outside due to space constraints.

The land owned by the City has accumulated over many years either by direct purchase or gift to the city. The parcels include:

- (R1) 4 acres along Dried Indian Creek Wooded parcel in flood plain. Currently has no access point except through private property.
- (R2) 2 parcels south of the cemetery Wooded lots that back up to residential area, which fronts Emory Street.
- (R3) Combined tract on the corner of Emory Street and Clarke Street. A Adjacent to the Post Office, this tract was the location of the city commercial section.

All of the current city facilities are shown in the attached zoning map. In addition, the post office is a very important city landmark. While the post office is not owned by the City, the residents have expressed the importance of the facility and its location to the City of Oxford. It plays a central role in the daily life of many residents. It is south of R3 and fronts Emory Street.

Finally, there are additional facility assets owned by Oxford College, private churches, or other government entities such as the elementary school. These assets rang from meeting rooms and assembly halls to ballfields, playgrounds and gymnasiums. Potential uses may be compatible with the City and cooperation in their use could be explored. Levels of cooperation and issues regarding liability and security make intergovernmental or public-private shared use difficult to maintain over the long term. There are potential non-financial benefits such as increased communication between groups when sharing a facility but the major upfront benefit of shared construction cost of a new facility may be overshadowed by divergent missions of the co-owners.





## **Planning Assumptions**

- City services are to remain at the present level: administration, electricity, water and sewer, solid waste including yard waste pickup and police department. The fire department to remain all-volunteer.
- The population of the City of Oxford will not appreciably increase by annexation or population influx even though Newton County will see increased population from development.
- City staff to remain at current levels.
- Funding for facilities improvements will come from current city funds or possible state grant programs.
- The City will maintain a close cooperative relationship with Oxford College. Oxford College is the City's largest electric customer and will remain so.



### **Citizen Survey**

In November of 2003, Armentrout Roebuck Matheny Consulting Group, P.C. created a citizen survey for the City of Oxford in order to obtain current opinions on the City and potential direction for the facilities plan. Approximately 74 completed surveys were submitted back to ARMCG for analysis. The surveys generated considerable insight on residents' desire for their community facilities. In addition, the level of satisfaction of existing services was gauged. The surveys and a compilation of responses are attached in Appendix 1.

When the citizens of Oxford were asked to rate the City of Oxford, overall, the response was very positive. Many residents responded that the quality life is good and it is a great community in which to raise a family. There is also a strong sense of community within Oxford between the City and Oxford College. Sponsorship of many cultural and recreational opportunities for all residents of Oxford was a highlight.

However, analysis of the citizen survey shows that many of the residents of Oxford do not take full advantage of the existing facilities and services within the town itself. Many have never used the Oxford community center, visited the old church for a meeting or function or attended a public meeting. These facilities are there for public use and increased involvement by the residents would help create stronger relationships within the community.

Several questions were used to determine the desire and use of facilities and services in the City. A ranking of the current or potential facility shows very strong interest in continuing basic services within the City. The post office ranks first as a major component of the City. Without a community business district, residents feel the post office acts as the community focal point. It serves as the place where neighbors can catch up on news, conduct impromptu meetings and maintain a sense of community. The size of the community center space was a concern.

Overall, the responses to the ranking of facilities or the desire to have a particular service focused on mainstream town services of fire, police, and postal service. In addition, during town hall meetings to discuss the results, it was evident that maintaining a continued presence of fire and police as well as a post office was vital to town citizens. Finally, citizens expressed the desire to clean up the City Barn in order to represent a most favorable view of the city at its northern end.



#### DESIRE TO HAVE FACILITY OR SERVICE IN OXFORD

Facility or Service	Rank Order
POST OFFICE	50
POLICE STATION	43
FIRE STATION	42
SCHOOLS	34
PARKS/ GREENSPACE	31
PHYSICAL PLANT	31
PLAYGROUND	30
COMMUNITY CENTER	27
CHURCHES	20
COFFEE SHOP	16
CHILD CARE	14
BOOKSTORE	13
RECREATION	7
HEALTHCARE	6
MULTI-USE TRAIL	4
GAS STATION	1

#### **REQUESTED FACILITIES**

Туре	Rank
FIRE STATION	223
POST OFFICE	180
COMMUNITY CENTER/ MEETING	161
PARKS/ PLAYGROUND	161
PHYSICAL PLANT/ MAINTENANCE	159
MULTI-USE TRAIL	8
JITNEY	6
GROCERY/ GAS STATION	3
SIDEWALKS	1



The survey and town hall meeting results showed mixed feelings within the community regarding commercial development in the City of Oxford. There was less public support for these types of facilities; however interest in protecting the city center and providing a place for Oxford College students to venture in the town was expressed. The type of commercial activity impacted the opinion of those either for or against the commercial development of Oxford. Small bookstore, coffee shop, or other light retail was definitely preferred over a gas station or jiffy mart. A small grocery store; however was not objectionable.

ARMCG personnel also conducted a windshield survey of the town to gain an appreciation of the layout and architectural styles present in the community. Since Oxford had expanded slowly, many architectural styles are present throughout the town. The main result was the impression the City needs some type of unifying theme once a traveler has entered city limits. This could be distinctive road markings for cross streets or special landscaped plantings to unify the town boundaries. Since there is no "downtown commercial center" to mark the City, a better identified central section should be considered.

The conclusion drawn from the surveys, town hall meetings and investigation of the City of Oxford and its relationship to Covington are:

- 1. Maintenance of a post office in the center of the city is paramount.
- 2. Citizens expressed a strong desire to upgrade the city barn and utility offices.
- 3. Continued fire and police presence is desired but the location within city limits is not as important. Location of the fire department is in fact a divisive issue within the community.
- 4. Developing the raw land owned by the City into parks is desired.
- 5. Commercial development is not that important but the "right" development would be desirable. The interpretation of "right" is not unanimous. In general, office, light retail or commercial is favored but no gas station or fast food development is welcomed.



#### **Options Include:**

#### 1. Post Office

- Creating a larger post office by encouraging the current owner of the post office building to expand.
- Constructing a new post office of sufficient size adjacent to the current one
- Do nothing with the risk that the Post Office would move out of town

#### 2. City Offices

- Combine Police/ Fire/ Utilities in one upgraded facility
  - City Barn location
  - City Center location
- Maintain Fire/ Police where located and upgrade Utility Department
- Move Fire/ Police adjacent to City Hall fronting Emory Street
- Move community center adjacent to City Hall
- Combine Fire/ Utilities at City Barn and expand Police Department at current location

#### 3. Trails and Parks

**Estimated Individual** 

- Develop trails to interconnect park areas
- Cooperate with City of Covington to develop a park on both sides of Dried Indian Creek at the current four-acre site
- Develop additional historic interest at the cemetery by moving the cabin behind the old church to the property south of the cemetery.
- Develop additional parks or playgrounds on vacant property

Space Requirements	Square Foot
New/ Expanded Post Office	6000
Utility Department with Maintenance Bays	5000
Fire Department	5200
Police Department	2500



### **Discussion of Options**

The City of Oxford has many options with regard to expansion and site selection of the various facilities currently owned by the City. After compiling the surveys and gathering citizen input, fulfilling the desires of the community still generates a laundry list of available site options. The city owns numerous parcels which can overwhelm the decision making process. In order to decrease the variables the city should focus on its prime mission of providing services and weigh more heavily combined facilities over individual units. This points the city to its larger parcels. The city should maintain its smaller parcels as greenspace for potential future developments as the surrounding area grows.

Of primary importance is the possibility that the new post office would move outside the city. Since the city wishes to keep the post office in its center, the two options for the post office expansion are relatively fixed – expand on the present site versus adjacent to it. The decision criteria to full scale development are in the end, financial and the community's feelings regarding additional city center development. Table 1 lists various options to be considered with attendant positive and negative points as well as a range of cost estimates.

The other clear-cut mandate from the community was to eliminate the poor facility currently used by the Utility Department and general cleanup of the City Barn site. Expansion on the current site versus closer connection with Oxford College Maintenance Department was weighed but issues of facility control, liability and priority scheduling of equipment overshadowed any cooperative advantage. Also the placement of a combined "industrial style" facility so near historic buildings and other residences did not seem practical. Since the current City Barn has been located at (or adjacent to) its present location for many years it is prudent to maintain it there and create a more professional appearance.

City residents also wished to maintain its Fire Department. Furthermore, to support its responsibility to and relationship with Oxford College, the City is exploring the purchase of an additional ladder truck sized for the current height of new dormitories on campus. This would require additional length in the fire truck bay as well as additional height at the entrance. Options include expanding the current site, building a new facility in the town center or move to other property in the northern part of the City. This is either adjacent to the Oxford Cemetery or at the City Barn.

The current location has very tight ingress/ egress and Whatcoat Street creates an impediment to expansion. The current city center property adjacent to the Post Office is not deep enough to allow a front and rear entrance into a new facility. In addition, a front entrance might require two 90-degree turns to enter a street since the DOT controls entrance designs to Emory Street. Since the site was cleared and has been maintained as an empty lot, the DOT may not honor curb cut entrances onto Emory Street that had previously existed.

Given these factors, the City Barn site has a number of advantages over others including a deeper lot, existing entrance driveway on Emory Street and frontage on Asbury Street. The property adjacent to the City Cemetery has similar advantages but it is farther from Oxford College. In addition, that site topography is not as flat as the City Barn site. Construction adjacent to the



cemetery will cost slightly more due to the site topography and the advantage for combining use (Utility Department with Fire and Police) under one roof is not gained.

The Police Department has experienced desire for more space for offices and storage. Options include moving with the Fire Department to a new location or moving only the Fire Department and expanding the Police Station into that abandoned section of the community center building. In weighing these options, the observation that the community center space was not adequate for larger events was considered. In order to provide a larger space for community events, the police department would need to be relocated. The Police and Fire departments could be combined at the City Center adjacent to the Post Office but this may limit full Post Office expansion. For that reason, moving the Police and Fire departments to the City Barn location is favored over the City Center area. Combining departments under one roof helps reduce construction costs, generates interdepartmental communication and increases security.

Finally, City Hall appears adequate at the present time but adequate storage space has been mentioned as an upcoming problem. Closing in the rear porch has been mentioned as a possibility, but adequate construction for long-term storage of records may be a problem. Off-site storage of records which can be archived appears to be a better choice. Archive locations could be at the utility office in a record room or in a new secure area in the current community center.

This table of facility options presents the alternatives from least to most expensive for the City of Oxford. Combinations of the options can then be chosen by the community in order to balance cost and the city's desires.

	······································		City of Oxford		
			Facility Options		
					Estimated_
<b>.</b> ,		Description	Benefits	Drawback	<u>Construction</u>
					Costs
<u>A.</u>	Status Quo	* Maintain current facility at current levels	* No capital cost to City	* No additional storage	\$0
				* Post Office may leave	
			·	* City Barn facility issuses not addressed	
<u>B.</u>	Status Quo with	* Demolition of current utility office house structure and construction	* Better work area for the utility department	* No resolution of Fire Hall Ladder truck issue	\$200,000 -
	status Quo with	of new utility office with better security and additional maintenance bays	* Maintenance shed where crews can work in inclement weather and store all	* Post Office can still leave town due to lack of space	\$300,000
	Born	of new utility office with better security and additional maintenance bays * Improvement to current fenced area	equipment out of the weather		
	Dall		* Additional storage space for other departments	-	
			* Better control of inventory		
<u>C.</u>	Combined Police,	* Combined Police, Fire and Utilities offices at the city barn area	* Additional equipment and vehicles will also now have coverage out of the rain	* Expensive option with low probability of grant funds	\$652,800
	Fire and Utilities	* Demolition of current utility office house structure	* Additional space for a ladder truck to support Oxford College dormitories	* Community center renovation requires additional funds	\$768,000
	Office	* Integration with playscape and basketball court on Asbury Street	* Additional storage space for all departments records	up tp \$100,000	
			* Provide security at North end of town for City equipment and provide recreational	, , , , , , , , , , , , , , , , , , , ,	
			complex at the North end of the City		
	-		* Allows expansion of community center for larger events and permanent Magistrate's Court		
<u>D.</u>	Post Office	* Expand Post Office at current location	* Expands Post Office with little City money	* Post Office must operate in building under expansion	\$100,000 -
-	Expansion	* Move parking onto City property adjacent to the Post Office	* Maintains Post Office in town and gives it room to expand	* Limited architectural input on expansion	\$200,000
	Znpanoten			* Creates only parking on valuable city center lot	
<u>E.</u>	Post Office	* Construct a new Post Office adjacent to the old Post Office	* New Post Office construction doesn't interrupt current Post Office operations	* Expense and risk of commercial development	\$500,000 -
	Expansion	* Encourage conversion of old Post Office to commercial space	* Post Office anchors new town development	* Community center renovation requires additional funds	\$750,000
	Incorporated with	* Fill Space between the new Post Office and City Hall with	* Revitalizes center of town	up to \$100,000	
	Town Center	additional commercial space	* Potential availability of development money		
	Concept	······································			



### **Costs**

In order to evaluate the options and provide guidance in the selection process, a cost analysis of potential projects was completed. Costing was developed from MEANS® which is a database of actual construction projects and their costs. Individual construction projects can differ significantly based on the building materials selected and site-specific problems such as below surface rock. Appendix II shows the MEANS® cost reference data.

Construction costs including site work can range from \$70.00 per square foot and up based on the type of structure and building materials selected. The best estimate of the potential options is summarized in Table 2.

Table 2										
Options	Potential Size	Square Foot	Cost Estimates							
	Sq. Ft.	Costs								
POST OFFICE	6,000	\$75 - \$95	\$450,000 - \$570,000							
UTILITY DEPARTMENT BUILDING	5,000	\$60 - \$80	\$300,000 - \$400,000							
FIRE DEPARTMENT BUILDING	5,200	\$75 - \$95	\$399,000 - \$494,000							
COMBINED FIRE/POLICE/UTILITY BUILDING	11,000	\$70 - \$90	\$770,000 - \$990,000							
COMMERCIAL OFFICE BUILDINGS		\$75 - \$100								
LIVE/WORK CONDOMINIUMS		\$85 - \$120								
PARK DEVELOPMENT			\$20,000 - \$100,000							

Table 3



### **Recommendation**

Based on input from the citizens and review of the overall growth to be expected in Newton County, it is our recommendation that the City of Oxford consider building an expanded post office adjacent to the current post office location. This structure should be sized to allow for the forecast expansion of service for the Oxford delivery area. The owner of the current post office should be encouraged to convert that structure to retail or commercial space. Georgia Economic Incentive Program funds could be used by the City of Oxford to aid this effort. These are grant funds that are received by the City and loaned to private individuals to aid in downtown development. As the private individual repays the loan, the City then recycles the funds for other downtown development projects.

The new post office would serve as the anchor for redevelopment of the city center on city owned property. Additional buildings should be developed to encourage light retail/commercial occupancy. Potential businesses would be service industries such as accounting, counseling or law offices. Sustainable uses such as a two-story live-work condominium development with living quarters on the second floor and office space below may be considered as a desirable infill project. The photographs below are examples of city streetscapes to be encouraged. Buildings would be close to Emory Street and parking would be in the rear. The parking entrances would be on West Clark and George Streets. Alternatively, on-street parking could be created. Angled parking in front would tend to slow down traffic through the city and create a downtown look and feel.





Since development will continue to the north of the city, positioning fire and police services with the utility department at the current City Barn area would strategically locate the fire department toward these future growth areas including significant undeveloped tracts at this end of town.

The current utility department office should be demolished and new quarters constructed. Additional space should be allocated for utility repair and maintenance equipment. The additional bays would





be used for secure parking for the electrical bucket truck, garbage trucks and other City utility vehicles. Our recommendation is that the utility office workspace and maintenance facility be approximately 5,000 square feet if constructed as a stand-alone building. This will accommodate utility personnel and expanded storage for work supplies. Consideration should be given to pre-engineered structures to shelter electrical supplies, piping or city equipment as needed. An example of a nicely sited utility department with maintenance bays is shown nearby. This site is adjacent to an historic area and buffers the area from property zoned industrial/ commercial.

An alternative that should be considered is a combined fire/police/utility facility. The benefits of this are reduced overall construction cost, increased city presence at the north end of town, fire service support of Newton County and the development of relatively blighted city property. A conceptual site plan and front elevation is attached. While this is a relatively expensive option, it eliminates overcrowding in the city center and opens the community center up to additional expansion and renovation.

The City of Oxford through its Trails Committee in partnership with Newton County and the City of Covington are exploring development of walking trails and possibly parks throughout Oxford and surrounding areas. The City of Oxford should continue this process in order to utilize the current greenspace owned by the City.

Right-of-way or easements should be sought to obtain access to the 4-acre tract on Dried Indian Creek. This area



should be developed as a natural park area with walking trails and picnic facilities. In addition, the greenspace area behind the Old Church could be a possible park area and marked walkways connected to the Dried Indian Creek.







# **APPENDIX 1**

#### The City of Oxford Citizen Survey

#### 1. Please circle the number that comes closest to your opinion for each of the following questions:

Don't know
0
3
2
0

2. Please rate each of the following characteristics as they relate to the City of Oxford as a whole:

	Excellent	Good	Fair	Poor	Don't know
Sense of community	10	23	13	0	1
Overall appearance of the City of Oxford	7	27	14	3	0
Opportunities to attend cultural activities	12	20	16	5	2
Recreational opportunities	2	11	16	16	2
Job opportunities	1	6	7	30	6
Access to affordable quality housing	1	22	16	6	5
Access to affordable quality child care	1	8	4	17	18
Access to affordable quality health care	6	20	6	15	3

3. Please rate the speed of growth in the following categories in the City of Oxford or surrounding area over the past 2 years:

	Much too slow	Somewhat too slow	Right Amount	Somewhat too fast	Much too fast	Don't know
Population growth in the City of Oxford	1	3	29	7	4	6
Retail growth (stores, restaurants, etc.) in the City of Oxford	14	5	19	1	0	5
Commercial growth in the City of Oxford	10	11	18	4	0	4
Population growth in the surrounding area	1	0	9	18	14	2
Retail growth in the surrounding area	4	4	16	14	9	0

4. In the past 12 months, about how many times have you or other household members participated in the following activities in the City of Oxford

	Never	Once or twice	3 to 12 times	3 to 26 times	> than 26 times
Used City of Oxford community center	22	17	8	1	2
Participated in a recreation program or activity	28	12	9	0	0
Visited a City of Oxford park	22	15	5	4	3
Attended a meeting of local elected officials/other public meeting	12	16	15	6	3
Recycled used paper, cans, or bottles from your home	4	4	5	10	30
Volunteered your time to some group/ activity in the City of Oxford	19	12	8	5	6
Visited or used the Old Church for a meeting or function	20	8	16	4	1
Conducted business at the Oxford Post Office	3	4	6	12	26
Visited the Oxford College campus	9	6	17	7	6
Attended an Oxford College program or sporting event	23	10	14	1	2
	20	.0	14		-

#### The City of Oxford Citizen Survey

#### 5. How do you rate the quality of each of the following services in the City of Oxford?

	Excellent	Good	Fair	Poor	Don't know
Police services	11	39	9	1	1
Fire services	8	36	7	5	6
Traffic enforcement	8	27	12	9	3
Garbage collection	17	30	8	2	1
Recycling	16	30	6	3	4
Yard waste pick-up	11	21	9	14	4
Street repair	4	17	21	17	2
Street cleaning	4	13	18	22	4
Street lighting	9	22	19	10	0
Amount of public parking	3	13	21	12	8
Storm drainage	1	16	18	16	4
Drinking water	14	33	10	3	0
Sewer services	8	27	5	5	12
City offices	13	33	9	1	3
Appearance/ maintenance of parks	5	24	15	3	9
Appearance of community center/ facilities	11	28	13	1	5
Land use, planning and zoning	4	18	11	12	11
Code enforcement (weeds, abandoned buildings, etc.)	0	8	22	24	6

#### 6. What additional services should the City of Oxford provide?

Better street lighting More efficient use of Sanitary Department for cleanup on city streets Animal Control

7. Which services provided by the City of Oxford need improvement? Improve services for yard waste pickup

Street and sidewalk repairs Better Fire Protection

#### 8. Do you feel that the City of Oxford and Oxford College work cooperatively?

Which areas shoud the City of Oxford and Oxford College explore to increase their cooperation?

Overall, a very positive working relationship

Oxford College could increase their involvement/sponsorhship in community activities

Increase involvement in community by more involvement/ mentor program with youth in area schools

9. Would you like to see more commercial/retail activity in the City of Oxford? If so, what kinds of activity would you favor or suggest? Encourage locally-owned restaurants and small commercial space Development of City Center Oppose large commercial development



# **APPENDIX 2**

#### COMMERCIAL/INDUSTRIAL/ INSTITUTIONAL

# M.220

# Fire Station, 1 Story



# Costs per square foot of floor area

		<b>4500</b> ;	5000		6000	6500	7000	7500	8000
L.F. Perimeter	260	280	300	320	320	336	353	370	386
Steel Joises	110.20	108.15	106.50	105.20	102.25	101,10	100 25	··· ·.	98.70
Bearing Walis	107.70	105.65	164.00	102.70	 99 <i>3</i> 5	98.60	97.75		96.20
Stee <sup>1</sup> (cists	100.70	99.05	97.70	96.65	94.45	93.55	92.85		91.65
Beening Wals	98.40	96.70	95,40	94,35	92.10	91.25	90.55		89.35
Steel Joists	1:775	115.40	1,3.50	111.95		107.15	105.10		104,30
Searing Walls	115.45	113.10	111.20	109.65	106 15	104.80	103.80	102.98	102.00
Per 1001,[;	13.45	l i.95	10.80	9.80	9.00	8.30	7.65	7.20	6.75
Per 1 ()	1.75	1.70	1.65	1.60	1.45	1.40		·	- 025 1.30
-	Bearing Walls Steel faists Bearing Walls Steel Joigts Searing Walls Per 1.001.[: Per 1.0.	Bearing Walls         107.70           Steel loists         100.70           Bearing Walls         98.40           Stael Joists         117.75           Bearing Walls         115.45           Per 100 Lf:         13.45           Per 1.0,         1.75	Bearing Walls         107.70         105.65           Steel Joists         100.70         99.05           Bearing Walls         98.40         96.70           Steel Joists         17.75         115.40           Bearing Walls         115.45         113.10           Per 1001.1:         13.45         11.75           Per 101.1:         1.75         1.70	Bearing Wals         107.70         105.65         104.00           Steel loists         100.70         99.05         97.70           Bearing Wals         98.40         96.70         95.40           Steel joists         117.75         115.46         1 : 3.50           Steel joists         117.45         1 : 3.10         11 : 20           Per 100 1.1:         13.45         1 : 95         10.80           Per 1 ft         1.75         1.70         1.65	Steel Joiss         110.20         108.15         106.50         105.20           Bearing Walls         107.70         105.65         104.00         102.70           Steel Joist         100.70         99.05         97.70         96.65           Bearing Walls         100.70         96.70         95.40         94.35           Steel Joints         177.75         115.40         1.3.50         111.95           Bearing Walls         117.45         113.10         111.20         109.65           Per 100.1.f:         13.45         1.95         10.80         9.80           Per 10.1.f:         1.75         1.70         1.65         1.60	Steel Joiss         130.20         108.33         106.50         105.20         10225           Bearing Walls         107.70         105.65         104.00         102.70         99.75           Steel Joiss         100.70         99.05         97.70         96.65         94.45           Bearing Walls         98.40         96.70         95.40         94.35         92.10           Steel Joists         177.75         115.40         1.3.50         111.95         108.45           Bearing Walls         117.75         113.10         111.20         109.65         106.15           Bearing Walls         115.45         113.10         111.20         109.65         106.15           Per 100.1.f:         13.45         11.95         10.80         9.80         9.00           Per 1.0         1.75         1.70         1.65         1.60         1.45	Steel Joiss         110.20         108.15         106.50         105.20         102.25         101.10           Bearing Walls         107.70         105.65         164.00         102.70         99.75         98.60           Steel Joists         100.70         99.05         97.70         96.65         94.45         93.55           Bearing Walls         98.40         96.70         95.40         94.35         92.10         91.25           Steel Joists         177.75         115.40         1.3.50         111.95         108.43         107.15           Bearing Walls         117.75         115.40         1.3.50         111.95         108.43         107.15           Bearing Walls         115.45         113.10         111.20         109.65         106.15         104.80           Per 100.1.1:         13.45         11.95         10.80         9.80         9.00         8.30	Steel Joiss         110.20         108.15         106.50         105.20         10225         101.10         100.25           Bearing Walls         107.70         105.65         104.00         102.70         99.75         98.60         97.75           Steel Joists         100.70         99.05         97.70         96.65         94.45         93.55         92.85           Bearing Walls         102.70         99.05         97.70         96.65         94.45         93.55         92.85           Bearing Walls         198.40         96.70         95.40         94.35         92.10         91.25         90.55           Steel Joists         177.75         115.46         1,3.50         111.95         108.45         107.15         106.10           Bearing Walls         115.45         113.10         111.20         109.65         106.15         104.80         103.80           Per 100.11:         13.45         14.95         10.80         9.80         9.00         8.30         7.65           Per 1 ft         1.75         1.70         1.65         1.60         1.45         1.40         1.35	Steel Joiss         110.20         108.15         106.50         105.20         102.25         101.10         100.25         99.45           Bearing Walls         107.70         105.65         104.00         102.70         99.75         98.60         97.75         96.95           Steel loists         100.70         99.05         97.70         96.65         94.45         93.55         92.85         92.25           Bearing Walls         98.40         96.70         95.40         94.35         92.10         91.25         90.55         89.90           Steel loigts         177.75         115.40         1.3.30         111.95         108.45         107.15         106.10         105.20           Bearing Walls         117.45         113.10         111.20         109.65         106.15         104.80         103.80         102.90           Bearing Walls         115.45         113.10         111.20         109.65         106.15         104.80         103.80         102.90           Per 100.1.6         13.45         11.95         10.80         9.80         9.80         9.30         7.65         7.20           Per 1.0         1.75         1.70         1.65         1.60         1.45

The above casts were calculated using the basic specifications shown on the lacing page. These casts should be adjusted where occessary by design alternatives and owner's requirements. Reported completed project casts. For this type of structure, range from \$43.90 to \$129.80 per \$.5.

#### **Common additives**

Description	Unit	\$ Cast	Description	Unit	\$ Cosi
Applicaces			Appliones, cont	*1	V
Cooking range, 30° free standing Loven 2 over 30° builtin Loven 2 over 30° builtin Loven 2 over Counter top cook tops, 4 burner Microwove oven Combination range, refug & sink, 30° wide 60° wide 72° wide Combination range refugerator, sink microwove over & berouker Combination range refugerator, sink microwove over & berouker Combination residentiul, 41° compositor Dismostrer, pultien, 2 cycles 4 cycles Gorbuge disposer, sink type Hood for range, 2 space, verted, 30° vade 42° vide	Each Each Saich Cour Faich Each Each Saich Each Each Each Each Each Each Each	330-1475 1475 1600 415-1550 1200 2050 277-610 196-630 11/5-2375 3150 3575 5275 460-520 475-715 425-775 124-279 194-750 340 1650	Appliances, cont Refrigeration, no frast 10-12 CLF 14-16 CLF 18-20 CLF lockers, Steel, single tier, 60° or 72° 2 fier, 60° or 72° total 5 fire, box lockers Locker bench, lom, maple top anly Padestrik, steel pipe Sound System Amplifier, 250 watts Speaker, ceiling or wall humpet	Each Each Opening Opening Opening Citer Each Each Each Each	520 - 830 585 - 700 615 930 125 - 220 70 - 119 40 - 60 18.05 58 1650 145 277

120

#### COMMERCIAL/INDUSTRIAL/ INSTITUTIONAL

# M.460

# Office, 2-4 Story



# Costs per square foot of floor area

Exterior Wall	S.F. Area	5000	8000	12000	16000	20000	35000	50000	65000	80000
	LF. Perimater	220	260	310	330	360	. 440	490	548	580
Fore Brick with Concrete	Wood Jaists	153.75	131.20	118.30	109 45	104 80	95 65	91.20	 88,95	8/.20
Slock Buck-up	Stad Joists	154.00	137.40	118.55		105.00	93.85	91,40	89.15	- <u></u> - 87.40
Glass and Metal	Sheet France	148 80	128.35	116.70	108.80	i04.65	 96.45	92.55	90.55	89.00
Curtain Wall	R/Caric, Frame	152.35	131.90	120.25	712.35	708.15	i00.00	96,10	94.10	92.55
Whod Siding	Wood Frame	126.10	108.60	98.65	92,10	88.50	81.BC	78.60	76.95	/3.70
Brick Veneer	Wood Frome	137.95	117.35	105.50	97.65	93.40	85.15	81.20	79.20	77.65
Perimeter Adj., Add or Dedust	Per 100 LF	25.45	15.90	10.60	8.00	635	3.65	2.35	2.00	
Slory Hgt. Adj , Add or Deduct	Per 1 /9.	4.20	3.05	2 45	1.95	 1./0			2.00	1.55
	for Bo	soment, and \$3	 27.35 рег <b>ха</b>	nve koat af b					.ou	.65

The obove cash wave calculated using the basic specifications shown on the facing page. These cash should be adjusted where necessary for design alcunatives and owner's requirements. Reported completed project cash, for this type of structure range from \$41.60 to \$162.45 per \$.0

#### Common additives

Description	Unit	5 Cast
Clock System	0.01	<b>4</b> CUN
20 room	Each	12,700
50 room	Each	30,800
Closed Circuit Surveillance, One andou		50,000
Carriero and monitor	Each	1975
For additional camero strations, add	Each	745
Directory Baerels, Plastic, glass covered		
30° x 20° -	Each	565
36" x 49"	Sech	1025
Aluminum, 24" x 18"	bach	425
36° × 24°	Fech	535
48° x 32°	Earth	745
<b>48</b> ° × 50°	<u>Coch</u>	1600
Erveters, Hydroulic oussenger, 2 slops		
1500# coppeny	Fech	42,225
2500# capacity	Each	43,425
3580¢ capot by	Each	47,225
Additional stop, odd	Each	3630
Freegory Ligning, 25 wolf, optiery operated		
Lend pattery	Each	289
Nicker codition	ásch (	655

Description	Unit	\$ Cost
Sincle Detectors		a ubst
Colling type	Each	149
Duct type Sound System	Each	405
Amplifier, 250 watts	Each	1650
Specifier, ceiting on well	Earth	145
françei TV Autorea Martineau 12	bach	271
TV Actenna, Moster system, 12 autor	Culler	236
30 padet	O:nlei	250
700 ouflet	Cutier	144

**BUILDING TYPES** 

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# AMERCIAL/INDUSTRIAL/ M.490 **Police Station**



### Costs per square foot of floor area

Edenior Wall	S.E. Area	7000	9000	11000	13000	15000	17000	19000	. 21000	23000
	LF. Perimeter	240	280	303	325	354	372	397	422	447
limestone with Concrete	Searing Wails	156.40	146 15	137.30	131 15	127.25	123.30	120.80	118.75	117.00
Block Bock-up	R/Conc. Frame	164 50	154.75	146 55	140.80	137.20	133.55	231.20	`29.25	- 77.70
Face Brick with	Bearing Wals	137.90	129.25	122.30	117.45	114.35	111.30	109.25	107.65	106.30
Concrete Słaci. Szak-up	R/Cone, Hanie	152.50	143 85	136.90	102.05	128.95	125,90	123.85	172.20	120.85
Decorative	Bearing Walls	131 05	123.00	116.80	112.45	109.60	106.90	105.10	103.60	102 40
Concrete Block	R/Conc. Frame	145.55	137.60	131,40	127.05	124 20	121.50	119.70	138.20	
Perimeter Adj., Add ar Deducr	P≈ 100 LF.	20.80	16.15	!3.25	11,20	9.70		7.70	- 6.95	6.35
Story Hgt. Adj., Add or Deduct	Per Iht.	3 65	3.30	2.95	2.65	2.55	2.35	2.25	2.15	2,10

me toot of buscment area

The above casts were calculated using the basic specifications shown on the facing page. These casts should be adjusted where accessary for design alternatives and owner's requirements. Reported completed project casts, for this type of structure, range from \$69.45 to \$178.40 per 57

#### **Common additives**

Description	Unit	S Cost	Description	Une	5 Cost
Cells Profabricated, 51-61 wide,			Lockers, Stoel, Single tier, 60° to 72*		
718 high, 718 deep	Each	9500	2 fiet, 60° or 72° total	Орелигд	125 220
Eevatars, Hydrovic pussengar, 2 stops	Eden	/200	5 tier, box lockers	Opening	70 119
1.500¢ organity	Each	42,225		Opening	49 - 60
2500# copucity			Locker bench, kam. maple top only	LE	3B.05
35004 copicity	Each	43,425	Pedustak, sizel pipe	եզգե	.58
	Each	47,225	Safe, Office type, 4 hour rating		
Entergency Lighting, 25 wult, bottory operated			30° x 18° x 18°	Each	3125
Leasi bottery	Each	289	62° x 33° x 20°	Eoch	6/75
Nickel cudmism	Each	655	Shooting Range, Ind. buller traps,		
Flagpoles, Complete			turger provisions, and comple.		
Alemanum, 201 high	Fach	1075	oct incl. structural shell	Each	23,800
40° high	Each	2675	Smake Detectors	LOC1	23,900
/C'hign	Eard	8250	Cailing type	tach	149
hipergrass, 731 high	Foch	1400	Duct type	Fach	405
391-51 nigh	Each	2950	Sound System		4007
ბ9' iðgh	tach	7300	Amolidiar, 250 watts	Eock.	1650
			Speaker, ceiling or wall	Euch	145
			Tiumper	Each	271

**BUILDING TYPES** 

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# Costs per square foot of floor area

Exterior Wol	S.F. Area	5000	7000	9000	11000	13000	15000	17000	19000	21000
	LF. Permeter	300	380	420	486	468	513	540	580	620
Face Brick with Concrete	Steel Frame	104.50	98.45	92.50	90.10	84.55	83.05	81.20	86.20	79.40
Block Back-iip	Beuring Wolls	102.95	96.95	90.95	88.55	83.00	81.5C	79,70	 78.65	
limestone with Concrete	Stoel Frome	116.75	109.60	102.00	99.10	 91.90	90.05	87.70		65.40
Block Brack up	Bearing Walls	114.65	107.45	<b>99.9</b> 5	97.00	89.80	87.95	- <u> </u>	84.35	
Decorative Concerts Black	Sizel frame	97.45	92.15	87.05	84.90	80.35	/9.05	77 50	76.65	- <u></u> _ 75.95
Concrete Black	Bearing Wolls	95,90	90.60	B5.50	83,35	78.80	77 50	75.95	75.10	73.43 74.40
Parimeter Adj., Add or Deduct	Per 100 LF.	11.90	8.55	6.50	5.45	4.60	3.95	3.50		
Story Hgt. Adj., Add or Deduct	Perl Fl.	1.90	1.65	1.45	1.35	1.16	<u> </u>	3.50 7.00	3.15  .95	- <u>2.85</u> _ .95
	For Base	ment, odd \$	17.65 per squ	ine foot of b	asemevit area	· _				

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from \$56.80 to \$14670 per \$.);

#### **Common additives**

Camera and monitor     Fach     1375     Double 15" x 15" x 6" x 5"     Each     44       For additional camera stations, add     Earh     745     Double 15" x 17" x 5"     Fach     76       Entergency Lighting, 25 wait, battery operated     Earh     745     Quuchuple 15" x 17" x 10"     Each     76       Entergency Lighting, 25 wait, battery operated     Each     289     Verticul, 6" x 5" x 15", aluminum     Each     36       Nickel cachnium     Each     289     Branze     Each     36       Nickel cachnium     Each     655     Street, enameled     56       Aluminum, 20" high     Each     1075     8" x 6" aluminum     Fach	<b>Description</b> Closed Circuit Surveillance, One station	Unit	\$ Cosi	Description	Unit	\$ Casi
Age         Each         2675         9" x /" platerm         Each         8220           70" high         Each         8250         Smake Detectors         Fach         11,20           Habergiass. 23" high         Each         1400         Ceiling torn         Ceiling torn	Comera and monitor For odditional comero stations, oxid Emergency Lighting, 25 watt, battery operated Load batery Nickel cachrium Hagpoles, Complete Aluminum, 20° high 40° high 70° high Nebergioss, 23° high 39° 5° high	Each Coch Each Each Each Each Each Each	745 289 655 1075 2675 8250 1400 2950	Quuchuple [ 3* x 12* x 10* Verticui, 5* x 5* x 15*, aluminum Branze Steel, enameled Scales, Dial type, 5 ton cap. 8* x 6* platform 9* x 7* platform 9* x 7* platform Smake Derectors Colling type	Each Fach Each Each Each Fach Fach Each	44 78 137 36 58 39 6225 11,200

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**BUILDING TYPES** 

LEKEBERERTIKKER IN

# COMMERCIAL/INDUSTRIAL/ M.630

# Store, Retail



# Costs per square foot of floor area

sts90	<b>50</b> ).85	340	360	410	440			20000	22000
	1.85		· · · · · ·			490	540	565	594
		BD.30 .	76.30	73.40	/0.70	68.20	<u>66.55</u>	65.50	
sts BB	1.75	87.45	74.85	/2.10	69.55	67.15	65,60	64.60	04.75 63.90
	.50	/7.A5	71.25	68.60	66.15	63.90	62.40		- <u></u> . 60.80
its 101	.15	92.30	83.45	79.95	76.55	/3.40	71.30	70.00	
nt (97	.50	89.10	80.90	//.60	74.45	71.55	69.60		69.05
ns 91	.25	83.65	/6.60	73.70	70.95	68.40	66.75		_ 67.50  64.95
LE 10.	/3	7.20	5.40	4.30	3.60	2.85	2.40	215	1.95
1.3	5	1.20	.95	.85	.80	.70			
	LE 10,	LE 10./3 1.35	LE 10./5 7.20 1.35 1.20	LE 10./3 7.20 5.40 1.35 1.20 .95	LE 10./3 7.20 5.40 4.30	I.E         10./3         7.20         5.40         4.30         3.60           1.35         1.20         .95         .85         .80	10./3         7.20         5.40         4.30         3.60         2.85           1.8         1.35         1.20         .95         .85         .80         .70	I.F.         10./3         7.20         5.40         4.30         3.60         2.85         2.40           1.35         1.20         .95         .85         .80         .70         65	I.E         10./3         7.20         5.40         4.30         3.60         2.85         2.40         2.15           1.35         1.20         .95         .85         .80         .70         65         .60

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project casts, for this type of structure, range from \$35.50 to \$123.50 per S.F.

#### Common additives

<b>Description</b> Emergency Lighting, 25 worth, battery aperated	Unit	\$ Cost
Lend buttery Nickef codinium Sole, Office type, 4 hour rating	bach Each	289 655
30° x 18° x 18° 67° x 33° x 20° Snicke Detectors	Each Each	3125 6/75
Ceiling type Duct type Sound System	Eac <del>h</del> Each	149 405
Ausplifier, 250 watts Speaker, ceiling ur wall Trumper	Fach Eacr. Éach	1650 145 271

**BUILDING TYPES** 

# COMMERCIAL/INDUSTRIAL/ M.670 Town Hall, 1 Story



#### Costs per square foot of floor area

S.E. Area	5000	6500	8009	9500	1 1000	14000	17500	21000	24000
LF. Perimeter	300	360	386	396	435	510	550	620	680
Steel Joists	103.20	99.20	94.50	90.35	88.75	86.45	83.35	82.00	81.20
Wood Joists	105 35	101.25	96.40	92.20	90.50	88.15	85.00	B3.60 .	82.80
Steel Joists	104.90	100.75	95.80	97.55	89.85	B7.45	84.25	82.85	<b>8</b> 2.00
Wood Josis	107.00	102.80	97,75	93.35	91.65	89.20	85. <b>8</b> 5	84.45	B3.60
Wood Frame	99.25	95.50	91.20	87,45	85,90	83.80	81.00	79,80	79.05
Wood Frame	94.45	91.05	87.30	B4.15	82.75	80.90	78.50	/7.40	76.80
Per 100 (. F.	10.40	8.00	6.50	5.45	475	3.70	2.95	2.50	2,15
Per 1 Ft.	1.90	1.75	- <u> </u>	1.30	1.30	1.15	i.00		
	LF. Perimeter Steel Joists Wood Joists Steel Joists Wood Joists Wood Frame Wood Frame Wood Frame	LF. Perimeter         300           Steel Joists         103.20           Wood Joists         105.35           Steel Joists         107.00           Wood Joists         107.00           Wood Frame         99.25           Wood Frame         94.45           Per 100 i. F.         10.40	LF. Perimeter         300         360           Steel Joists         103.20         99.20           Wood Joists         105.35         ±01.25           Steel Joists         104.90         100.75           Wood Joists         ±07.00         ±02.80           Wood Frame         99.25         95.50           Wood Frame         94.45         91.05           Per 100 i. F.         ±0.40         8.00	LF. Perimeter         300         360         385           Steel Joists         103.20         99.20         94.50           Wood Joists         105.35         £01.25         96.40           Steel Joists         104.90         100.75         95.80           Wood Joists         107.00         102.80         97.75           Wood Joists         107.00         102.80         97.75           Wood Frame         99.25         95.50         91.20           Wood Frame         94.45         91.05         87.30           Per 100 I.F.         10.40         8.00         6.50	LF. Perimeter         300         360         385         396           Steel Joists         103.20         99.20         94.50         90.35           Wood Joists         105.35         101.25         96.40         92.20           Steel Joists         104.90         100.75         95.80         97.55           Wood Joists         107.00         102.80         97.75         93.35           Wood Joists         107.00         102.80         97.75         93.35           Wood Joists         107.00         102.80         97.75         93.35           Wood Frame         99.25         95.50         91.20         87.45           Wood Frame         94.45         91.05         87.30         84.15           Per 100 I.F.         10.40         8.00         6.50         5.45	LF. Perimeter         300         360         385         396         435           Steel Joists         103.20         99.20         94.50         90.35         88.75           Wood Joists         105.35         101.25         96.40         92.20         90.50           Steel Joists         105.35         101.25         96.40         92.20         90.50           Steel Joists         104.90         100.75         95.80         97.55         89.85           Wood Joisis         107.00         102.80         97.75         93.35         91.65           Wood Joisis         107.00         102.80         97.75         93.35         91.65           Wood Frame         99.25         95.50         91.20         87.45         85.90           Wood Frame         94.45         91.05         87.30         84.15         82.75           Per 100 I.F.         10.40         8.00         6.50         5.45         4.75	LF. Perimeter         300         360         386         396         435         510           Steel Joists         103.20         99.20         94.50         90.35         88.75         86.45           Weed Joists         105.35         101.25         96.40         92.20         90.50         88.15           Steel Joists         105.35         101.25         96.40         92.20         90.50         88.15           Steel Joists         104.90         100.75         95.80         97.55         89.85         87.45           Wood Josis         107.00         102.80         97.75         93.35         91.65         89.20           Wood Frame         99.25         95.50         91.26         87.45         85.90         83.80           Wood Frame         94.45         91.05         87.30         84.15         82.75         80.90           Per 100 I.F.         10.40         8.00         6.50         5.45         4.75         3.70	LF. Perimeter         300         360         385         396         435         510         550           Steel Joists         103.20         99.20         94.50         90.35         88.75         86.45         83.35           Wood Joists         105.35         101.25         96.40         92.20         90.50         88.15         85.00           Steel Joists         105.35         101.25         96.40         92.20         90.50         88.15         85.00           Steel Joists         104.90         100.75         95.80         91.55         89.85         87.45         84.25           Wood Joisis         107.00         102.80         97.75         93.35         91.65         89.20         85.85           Wood Frame         99.25         95.50         91.20         87.45         85.90         83.80         81.00           Wood Frame         94.45         91.05         87.30         84.15         82.75         80.90         78.50           Per 100 i.F.         10.40         8.00         6.50         5.45         4.75         3.70         2.95	Lf. Perimeter         300         360         386         396         435         510         560         620           Steel Joists         103.20         99.20         94.50         90.35         88.75         86.45         83.35         82.00           Weed Joists         105.35         101.25         96.40         92.20         90.50         88.75         86.45         83.35         82.00           Steel Joists         105.35         101.25         96.40         92.20         90.50         88.15         85.00         83.60           Steel Joists         104.90         100.75         95.80         91.55         89.85         87.45         84.25         82.85           Wood Josis         107.00         102.80         97.75         93.35         91.65         89.20         85.85         84.45           Wood Freme         99.25         95.50         91.20         87.45         85.90         83.80         81.00         79.90           Wood Freme         94.45         91.05         87.30         84.15         82.75         80.90         78.50         77.40           Per 100 i.F.         10.40         8.00         6.50         5.45         4.75         3.70

The above costs wave calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project casts, for this type of structure, range from \$50.95 to \$143.85 per S.F.

#### **Common additives**

Description	Lini):	\$ Cost
Directory Roards, Plasiic, glass covered		•
30° <b>x</b> 20°	bech	565
36" x 48"	Each	1025
Alaminum, 24° x 18°	Fach	425
36" x 24"	Each	535
46° x 32°	Each	745
48" × 60"	Cardy	1600
Emergency Lighting, 25 wort, buttery operated		
Lead bottery	Each	289
Nickel codmium	Łach	655
Fiagnaiss, Complete		
Aluminum, 20' ngh	Each	1075
40' high	bach	2675
70° high	Soch:	8250
Fibergkass, 231 high	Each	*4GD
3915° high	Each	2950
.59' high	Foch	7305
Safe, Olitas type, 4 hour rating		
30" x 18" x 18"	Each	3125
62" × 33" × 20"	Each	6/75

Description	Unit	\$ Cost
Smoke Detectors		0.004
Ceiling type	Epch	149
Duct type	boch	405
Voilt Front, Deer & frame		
1 Hour test, 32" x 78"	Opening	3550
2 Hour test, 32° door	Opening	4225
46° door	Openine	4625
4 Hourites, 32° door	Opening	4325
40° ácor	Operation	5150
Fine lock isovernest; two movement	Fach	1450

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**BUILDING TYPES** 

Important: See the Reference Section for Location Factors