# **Experimental Study on Glass Powder Concrete With Scheduling Techniques**

#### S.Arulkesavan

Assistant Professor, Dept of Civil Engineering The Kavery Engineering College, Mecheri.

Abstract- The purposes of this study are to explode the mechanical behavior of concrete with glass powder. The test program was carried out to develop information about the mechanical properties of glass powder concrete. It is possible to have more ductile concrete while using the glass powder. Waste glass when ground to a very fine powder shows pozzolanic prosperities as it contains high silica  $(SiO_2)$  and therefore to some extent can replaced cement in concrete and contributes strength development. Due presence of high silica, the concrete will be set quickly. This study also provides the information related to time consumed by glass powder with the conventional one to complete a activity by using Software Packages.

Keywords- Glass Powder Concrete, Mechanical Properties, Strength Parameters, Scheduling Techniques

#### **I. INTRODUCTION**

Concrete is the most widely used building material in construction industry. It's a homogeneous mixture of cement, fine aggregate, coarse aggregate and water. The strength of concrete is mainly depends upon the cement content. Cement is a finely pulverized material which by itself is not a binder but develops the binding property as a result of hydration. The binding nature of cement is due to the presence of silica. The cement industry is one of the primary industrial producers of carbon dioxide (CO2), creating up to 5% of worldwide manmade emissions of this gas, of which 50% is from the chemical process and 40% from burning of fuels.

Glass is an amorphous (non-crystalline) that in essence, a super-cooled liquid and not a solid. Glass can be made with excellent homogeneity in a variety of forms and sizes from small fibers to meter-sizes pieces. Primarily glass is made up of sand, soda ash, limestone and other additives (Iron, Chromium, Alumina, Lead and Cobalt). Glass has been used as cement in road construction; building and masonry structures, because of it contain more silica in nature. forms a more binding capacity to the concrete. so it gives more strength and reduces the initial setting time of cement. Therefore, it leads to reduce the construction time and increase the speed of the construction.



Page | 410



Fine Glass Powder

# **II. METHODOLOGY**

This project follows the steps given below:

- 1. Collection and study the material properties required for making a concrete.
- 2. Mix proportioning of concrete  $(M_{20})$ .
- 3. Investigation of strength parameters like Compression, Tensile and Flexural strength of conventional concrete Vs Glass powdered Concrete.
- 4. Scheduling Technique using MS Project software.

## **III. MATERIAL PROPERTIES**

A. Cement:

The cement used for casting the specimen ordinary Portland cement. The required quantity is procured as single batch, stored in airtight bags are used for the experimental programme. The various properties of cement were determined experimentally and are tabulated.

Table - 1

S.No	Name of the Test	Test Value
1.	Standard Consistency	31%
2.	Specific Gravity	3.02
3.	Initial Setting Time	31 Mins
4.	Final Setting Time	9 Hrs 20 Mins
5.	Fineness Test	9.2%

B. Sand:

The fine aggregate confirms to Zone II and is designated as fine sand. All tests are carried out as per IS: 383-1970.

Tabl	ما	2
1 add	ie -	· 2

S.No	Name of the Test	Test Value
1.	Specific Gravity	2.60
2.	Fineness Modulus	3.11

C. Coarse Aggregate:

Aggregate are obtained by crushing various types of granites, schist, crystalline and lime stone and good quality sand stones.

Table - 3

S.No	Name of the Test	Test Value
1.	Impact Test	32.30%
2.	Crushing Strength	32.67%
3.	Elongation Index	41.44%
4.	Flakiness Index	37.21%
5.	Water Absorption	1.50

D. Mix Proportion:

I able - 4							
Materials	Mix Ratio (M <sub>20</sub> )	Quantity (Kg/m³)					
Cement	1	383					
Sand	1.48	570					
Coarse Aggregate	3.00	1152					
Water	0.50	191.6 Litres					

**m** 11

E. Properties of Fresh Concrete:

l able - 5							
S.No Name of the Test Test Value							
1.	Slump Cone Test	120 mm					
2.	Compaction Factor Test	0.94					

F. Properties of Glass Powder:

	Table - 6							
S.No	Name of the Test	Test Value						
1.	Specific Gravity	2.60						
2	Fineness Modulus	9.00%						

# **IV. EXPERIMENTAL INVESTIGATION OF CONCRETE**

The following experiments were conducted on concrete specimens to study certain aspects of glass powder replaced concrete used in this work.

Definition	7
Conventional concrete without addition of glass	1

Mix	Definition
Р	Conventional concrete without addition of glass powder.
PG <sub>10</sub>	10% replacement of cement by glass powder with conventional concrete.
PG <sub>20</sub>	20% replacement of cement by glass powder with conventional concrete.
PG <sub>30</sub>	30% replacement of cement by glass powder with conventional concrete.

## A. Compression Test:

Compressive strength is one of the important properties of concrete. Concrete cube size of 150x150x150mm was cast with and without glass powder. After 24 hours the specimen were remoulded and subjected to water curing. After 3,7,14 and 28 days of curing, the three cubes were taken and allowed to dry and tested in compressive strength testing machine.

Compressive strength  $f_{ck}=P/A$  (N/mm<sup>2</sup>) Where,

P= Ultimate Load (N)

A = cross section of area of cube specimen





Fig. 1 Compressive Strength of conventional Vs Glass Powder Concrete



Fig. 2 Compressive Strength test on Concrete



Tensile strength is indirect way of finding the tensile strength of concrete by subjecting the cylinder to a compressive force. Cylinder of size 150mm diameter and 300mm long were cast with and without glass powder. After 24 hours the specimens were remoulded and subjected to water curing. After 3,7,14 and 28days of curing, the curing three cylinders were taken and allowed to dry and tested in UTM by placing the specimen horizontal. The ultimate loads of the specimen were noted.

Split tensile strength=  $\frac{2P}{\pi dl}$  (N/mm<sup>2</sup>)

Where,

P = maximum load (N).dl= surface area of specimen (mm<sup>2</sup>).



Fig. 3 Split Tensile Strength of conventional Vs Glass Powder Concrete



Fig. 4 Split Tensile Strength test on Concrete.

# C. Flexural Strength Test:.

To determine the flexural strength of concrete of beam of size 500x100x100mm were cast with and without glass powder. After 24hours the specimen were remoulded and subjected to water curing. After 3, 7,14and 28days of curing, the curing three beams were taken and allowed to dry and tested in UTM.

Flexural strength = 
$$3pa/bd^2 (N/mm^2)$$
  
Where,

P = Ultimate load (N).

a = spacing between the rollers (mm).

b = width of specimen (mm).

d = depth of specimen (mm).



Fig. 5 Flexural Strength of conventional Vs Glass Powder Concrete



Fig. 6 Flexural Strength test on Concrete

# **V. SCHEDULING TECHNIQUES**

Scheduling is a method by which the project work specified by some means is assigned the various resources such as labour, materials, equipment and Cost to complete the task of the project. Its main aim is to complete the total amount of work in a project per estimated time and cost.

A. List of Activity:

ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names
	ň	Literature Collection	5 date	Map 8/3/15	Ex 8/7/4	R	
	10	Camani Tart	7 days	Man Alt0/15	Tue 8/98/9	4	Camari
	110	Contoni rosi	7 days	Mon 8/17/15	Tile 8/35/4		Cand
1	10	Costa Aggregate Test	7 days	Man 8/24/18	Tue 6/1/4	8	Corre Annante
2	110	Comparison Shandh Tast(CC)	2 days	The 6/3/45	Man 0/7/1		course Aggregate
6	1	Compression Strength Test(CC)	7 days	The 9/3/15	Ed S/11/1	5	conventional concrete
7		Compression Strength Test(CC)	14 days	Thu 9/3/15	Tite 9/22/1	8	conventional concrete
		Compression Strength Test(CC)	25 days	Th: 9/3/15	Mon 10(12/1	5	conventional concrete
0	100	Compression Strength Test (GD10)	2 days	Wed 2/2/46	EN 21814	6	Glass nowder concrete (30%)
10	100	Compression Grength Test (GP10)	7 days	Med 00146	The Distan		Gines powder controls (10%)
10	112	Compression areingen Test (GP10)	14 days	Wed 2/3/10	Mas 2/22/4		Glass powder concrete (10 %)
- 40	100	Compression Strength Test (GP10)	14 uays	Wed 2/3/10	Ed 2/414		Glass powder contrate (10 %) Glass powder contrate (10%)
42	12	Compression Strength Test (GP10)	20 days	Web 2/3/10	PIL 2/11/1	0	Glass powder concrete (10%)
10	110	Compression Strength Test (GP20)	5 days	Tue 2/9/10	Fri 2011/1		Glass powder concrete (20%)
14	172	Compression Strength Test (GP20)	14 days	Tue 2/0/10	EN 2/261		Glass powder concrete (20%)
10	10	Compression airengen Test (GP20) Compression Strength Test (GP20)	14 days	Tue 2/0/16	The 2/20/1	8	Glass powder contrete (20%) Glass powder contrete (20%)
47		Compression Strength Test (GP20)	20 days	EN DROISE	The D/48/4	6 13	Glass powder contrete (20%)
17		Compression Strength Test (GP30)	7 days	EN DHOME	Max 2/22H	6 10	Glass powder contrate (30%)
10	-	Compression Strength Test (GP30)	14 days	EH 2H2H6	Worl 2/2/1	6	Glass powder contrate (30%)
20		Compression Strength Test (GP30)	14 uays	EH 2H2H4	The 9/2014	8	Glass powder contrate (30%)
20	100	Compression Speright Test (CF30)	20 days	EH 6/4/48	The GRH		consectional concrete (30 A)
20		Split Tensile Strength Test (CC)	7 days	EN GUINE	Man 9/44/4	4	conventional concrete
24		Split Tensile Strength Test (CC)	r uaya	PH DWH	Multiprevil		conventional concrete
23		apit Tensie atrength Test (CC)	14 days	PI1 814/10	Wed 9/23/1	0	conventional concrete
24		apit Tensie arength Test (CC)	20 days	Pf1 84/10	Tue 10(13/1	0	conventional concrete
20	-	Split Tensile Strength Test (GP10)	3 days	Mon 2/0/10	Web 2/10/1	0.9	Glass powder concrete (10%)
20	100	apit Tensie arength Test (GP10)	/ days	Mon 2/0/10	Tue 2/10/1	0	Glass powder concrete (10%)
21		apit Tensie atrength Test (GP10)	14 days	Mon 2/0/10	Thu 2/20/1	0	Glass powder concrete (10%)
20	1	apit Tensie arength Test (GP10)	20 days	M03 2/0/10	Web 3/10/1	0	Glass powder concrete (10%)
28		Split Tensile Strength Test (GP20)	3 days	Tue 2/9/10	100 2/11/1	0	Glass powder concrete (20%)
30		apit Tensie arength Test (GP20)	/ days	Tue 2/9/10	Wed 2/17/1	0	Glass powder concrete (20%)
31	12.0	Split Tensile Strength Test (GP20)	14 days	Tue 2/8/10	Fil 2/20/1	0	Glass powder concrete (20%)
32		Split Tensile Strength Test (GP20)	20 days	100 209 10	EN 2/17/1	0	Glass powder concrete (20%) Glass powder concrete (20%)
33	11	Split Tensile Strength Test (GP30)	3 days	Wed 2/10/10	Fn 2/12/1	0	Glass powder concrete (30%)
24	-	apit Tensie arengin Test (GP30)	/ days	Weg 2/10/10	110 2/10/1	0	Glass powder concrete (30 %)
35	11	Split Tensile Strength Test (GP30)	14 days	Wed 2/10/16	Mon 2/29/1	0	Glass powder concrete (30%)
30		Split Tensile Strength Test (GP30)	28 days	Wed 2/10/16	Fri 3/10/1	0	Glass powder concrete (30%)
37		Flexural Strength Test (CC)	3 days	Fri 2/0/10	Tue 2/9/1	0	conventional concrete
30		Hexural Strength Test (CC)	7 days	Fri 2/5/16	Mon 2/15/1	0	conventional concrete
39	-	Hexural Strength Test (CC)	14 days	Fri 2/5/16	Wed 2/24/1	0	conventional concrete
40		Hexural Strength Test (CC)	20 days	Fri 2/5/16	Tue 3/16/1	0	conventional concrete
41		Flexural Strength Test(GP10)	3 days	Mon 2/15/16	Wed 2/17/1	0 33	Glass powder concrete (10%)
42		Flexural Strength Test(GP10)	7 days	Mon 2/15/16	Tue 2/23/1	0	Glass powder concrete (10%)
						Page 1	

# ISSN [ONLINE]: 2395-1052





Fig. 8 Gantt chart

## C. Task and Duration:

ID	0	Task Name	Duration	Start	Finish	Predecessors	<b>Resource Names</b>
----	---	-----------	----------	-------	--------	--------------	-----------------------

1		Literature (	Collection			5 days	Mon 8/3/15	Fri 8/7/15	
2		Cement Te	ist			7 days	Mon 8/10/15	Tue 8/18/15	Cement
1	0	Resource Name	linite	Hirek .	Delay	Start	Finish		<b>OVER UNITED</b>
	28	Cement	100%	56 hrs	0 days	Mon 8/ 0/15	Tue 8/18/15		
3	1	Fine Annre	gate Test			7 dava	Mon 8/17/15	Tue 8/25/15	Sand
1		Resource Name	Unite	Week	Delay	Stad	Finish		
	29	Sand	100%	56 hrs	0 days	Mon 8/17/15	Tue 8/25/15		
4		Coarse Ag	orecate Test			7 days	Mon 8/24/15	Tue 9/1/15	Coarse Appreciate
	ID	Resource Name	Unts	Work	Delay	Start	Finish		
	30	Coarse Appregate	100%	56 hrs	0 days	Mon 1/24/15	Tue 9/1/15		
5	3	Compressio	on Strength	Test(CC)		3 davs	Thu 9/3/15	Mon 9/7/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	itart	Finish		
	24	conventional concret	te 100	% 2411	rs Odijs	Thu 9/3/15	Mon 9/7/15		
6		Compressi	on Strength	Test(CC)		7 days	Thu 9/3/15	Fri 9/11/15	conventional concrete
	iD	Resource Name	Units	Work	Delay	Start	Finish		
	24	conventional concret	le 100	% 56 h	rs 0 days	Thu 9/3/15	Fil 9/11/15		
7 🖪	3	Compressi	on Strength	Test(CC)		14 days	Thu 9/3/15	Tue 9/22/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	Start	Finish		
	24	conventional concret	le 100	% 1121	tvs 0 day	s Thu 9/3/15	Tue 9/22/15		
8		Compressio	on Strength	Test(CC)		28 days	Thu 9/3/15	Mon 10/12/15	conventional concrete
	ID	Resource Name	Units	Work	De lay	Starf	Finish		
	24	conventional concret	te 100	% 2241	hrs D day	s Thu 9/3/15	Mon 10/12/15		
21	2	Split Tensil	e Strength T	est (CC)		3 days	Fri 9/4/15	Tue 9/8/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	Start	Finish		
	24	conventional concret	te 100	% 24 hr	rs 0 days	Fit 3/4/15	TLe 98/15		
22		Split Tensil	le Strength T	est (CC)		7 days	Fri 9/4/15	Mon 9/14/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	Start	Finish		
	24	conventional concret	le 100	% 56 hr	rs Ó days	Fit 3/4/15	Mon 9/14/15		
23	3	Split Tensil	le Strength T	est (CC)		14 days	Fri 9/4/15	Wed 9/23/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	Start	Finish		
	24	conventional concret	le 100	% 1127	tirs 0 day	s Fil 9/4/15	Wed 9/23/15		
24		Split Tensil	le Strength T	est (CC)		28 days	Fri 9/4/15	Tue 10/13/15	conventional concrete
	ID	Resource Name	Units	Work	Delay	Start	Filvish		
	24	conventional concret	te 100	% 2247	hrs 0 day	s Fri 9/4/15	Tue 10/13/15		

D	0	Task Name	Duration	Start	Finish	Predecessors	Resource Names
2	73	Compression Strength Test (GP10)	28 days	Wed 2/3/16	Fil 3/11/16		Glass powder concrete (10%)
	1D	Resource Neme Units Work	Delay Start	Filiah			
	25	Giaza powder concrete (10%) 100% 224 h	a 0 days Wed 2/3	16 PH 3/11/16			
37		Rexural Strength Test (CC)	3 days	Fri 2/5/16	Tue 2/9/16		conventional concrete
	ND.	Resource Neme Units Work De	iay Start /	indah			
	24	conventional concrete 100% 24 hrs 0	days Pri 2/5/16 Ti	ie 2/9/16			
38		Flexural Strength Test (CC)	7 days	Fit 2/5/16	Mon 2/10/16		conventional concrete
	10	Resource Nerve Units Work De	lay Start	'inizh			
	24	convertional concrete 100% 56 hrs 0	dayz Pri 2/5/16 M	an 2/15/16			
39		Flexural Strength Test (CC)	14 days	Fit 2/5/16	Wed 2/24/16		conventional concrete
	40	Resource Nerrie Lintz Work D	elay Shari	Pinish			
	24	convertional concrete 100% 112 hrs	0 days Pri 2/5/16	Ved 2/24/16			
10	1	Flexural Strength Test (CC)	28 days	Fri 2/5/16	Tue 3/15/16		conventional concrete
	ND.	Resource Name Litits Work D	alay Start	Pinish			
	24	convertional concrete 100% 224 hrs	0 days Pri 20/16	La 3/15/16			
25		Split Tensile Strength Test (GP10)	3 days	Mon 2/6/16	Wed 2/10/16	9	Glass powder concrete (10%)
	1D	Resource Neme Units Work	Delay Start	Pinish			
	25	Gless powder concrete (10%) 102% 24 hrs	0 days Mon 2/8/3	Wed 2/10/16			
5		Split Tensile Strength Test (GP10)	7 days	Mon 2/6/16	Tue 2/16/16		Glass powder concrete (10%)
	iD	Resource Name Units Work	Delay Start	Pinah			
	25	Glass powder concrete (10%) 100% 55 hrs	0 days Mon 2/8/1	Tue 2/16/16			
27	13	Solit Tensile Strength Test (GP10)	14 days	Mon 2/8/16	Thu 2/25/16		Glass powder concrete (10%)
	ND .	Resource Name Units Work	Delay Start	Pinañ			
	25	Giazz powder coverete (10%) 100% 112 h	z 0 daya Mon 2/6/	16 Thu 2/25/36			
5		Split Tensile Strength Test (GP10)	28 days	Mon 2/8/16	Wed 3/16/16		Glass powder concrete (10%)
	10	Resource Nette Units Work	Delay Start	Finish			
	25	Giass powder concrete (10%) 100% 224 h	n Öldaya Mon 2/8/	16 Wind 3/16/16			
13	11	Compression Strength Test (GP20)	3 days	Tue 2/9/16	Thu 2/11/16		Glass powder concrete (20%)
	10	Resource Name Units Work	Delay Sharf	Pinish			
	26	Glass powder concrete (20%) 100% 24 hm	0 days 70e 25/10	Thu 2/11/16			
14	11	Compression Strength Test (GP20)	9 days	Tue 2/9/16	Fit 2/19/16		Glass powder concrete (20%)
	10	Resource Name Units Work	Delay Shert	Finish			
	26	Glass powder contrels (20%) 100% 72 hrs	0 days Tile 25/16	PH 2/19/16			
15	123	Compression Strength Test (GP20)	14 days	Tue 29/16	Frt 2/26/16		Glass powder concrete (20%)
	10	Restore Name Units Work	Delay Shart	Frink			
	28	Glass powder concrete (20%) 102% 112 h	a O daya Tue 2/5/	6 Pri 2/26/16			
16	77	Compression Strength Test (GP20)	28 days	Tue 29/16	Thu 3/17/16		Glass powder concrete (20%)
	10	Resource Neme Units Work	Delay Slart	Finah	The erritig		Galles portion conjurate (ao //)
	26	Glass powder concrete (20%) 100% 224 h	a 0 days Tue 2/9/	6 Thu 3/17/16			
29	72	Split Tensile Strength Test (GP20)	3 days	Tue 2/9/16	Thu 2/11/16		Glass powder concrete (20%)
2	10	Ransure Name Units Block	Deley Shut	Frank			and prove second (as a)
	-2	Glass powder concrete (20%) 100% 24 hrs	0 days Toe 29/18	The 211/18			
an l		Solt Tensile Strength Test (GP20)	7 days	Tue 2/9/16	Wed 2/17/16		Glass powder concrete (20%)
	-	Resource Mana (Inty and	Date: Date:	Finish .	THE A LITTLE		and bound counter (50.0)
	10	Class manufac manufac (2051) 1205 46 km	O dear Tax 30/1/	Printil Miles Sci Stat			

Page 2

Fig. 9 Task and Duration of Project

GLASS POWDER CONCRETE

D. Budget:

0	Task Name	Fixed Cost	Fixed Cost Accrual	Total Cost	Baseline	Variance	Actual	Remaining
1	Cerneri Teat	\$0.00	Promised	\$700.00	\$0.00	\$700.00	\$0.00	\$700.00
î.	Coarse Aggregate Text	\$0.00	Provaled	\$500.00	\$0.00	\$500.00	\$0.00	\$600.00
3	Fine Aggregate Test	\$0.00	Prorated	\$200.00	\$0.00	\$200.00	\$0.00	\$200.00
5	Compression Strength Test(CC)	\$0.00	Prorated	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
8	Compression Strength Test(CC)	\$0.00	Prorated	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
1	Compression Strength Test(CC)	\$0.00	Pronafied	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
8	Compression Strength Test(CC)	\$0.00	Prorated	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
21	Split Tenale Strength Test (CC)	\$0.00	Prorated	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
22	Spit Tenale Strength Test (CC)	\$0.00	Prorated	\$150.00	\$0.00	\$150.00	\$0.00	\$150.0
13	Spill Tensile Strength Test (CC)	\$0.00	Prorated	\$150.00	\$0.00	\$130.00	\$0.00	\$190.0
4	Split Tensile Strength Test (CC)	\$0.00	Pronated	\$150.00	\$0.00	\$130.00	\$0.00	\$150.0
1	Fiesural Strength Text (CC)	\$0.00	Prorated	\$150.00	\$0.00	\$120.00	\$0.00	\$150.0
0	Fiexure strength see (CC)	30.00	Prorated	\$150.00	50.00	\$120.00	30.00	3120.00
19	Fielder Steringth Self (CC)	20.00	PTOTADO	\$150.00	20.00	\$120.00	20.00	3100.00
N I	Concreasion Stressili Test (CD10)	\$0.00	Provaled	\$150.00	50.00	\$120.00	00.00 60.00	\$120.00 \$120.00
10	Compression Strength Test (CP10)	50.00	Devealed	\$120.00	60.00	\$120.00	80.00	\$120.0
	Compression Strength Test (CP10)	50.00	Devealant	\$120.00	60.00	\$120.00	60.00	\$130 M
2	Contreasion Strength Test (GP10)	\$0.00	Provaled	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
15	Soli Tecala Shereth Tast (GD10)	50.00	December	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
	Soli Tanala Shareh Taat (GD10)	\$0.00	Donalad	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
1	Solt Tensile Shength Test (GP10)	\$0.00	Provaled	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
18	Split Tensile Strength Test (GP10)	\$0.00	Prorated	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
1	Flexural Strength Test(GP10)	\$0.00	Provaled	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
2	Flexural Strength Text(GP10)	\$0.00	Provaled	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
13	Flexural Strength Text(GP10)	\$0.00	Provaled	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
4	Flexutal Strength Test(GP10)	\$0.00	Prorated	\$120.00	\$0.00	\$120.00	\$0.00	\$120.0
3	Compression Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.00
4	Compression Strength Test (GP20)	\$0.00	Pronated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
15	Compression Strength Text (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.00
6	Compression Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.00
19	Spilt Tenale Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
10	Spill Tensile Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.00
I	Split Tensile Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.00
2	Split Tensile Strength Test (GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
5	Flexural Strength Text(GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
0	Flexural Strength Text(GP20)	\$0.00	Prorated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
1	Flexural Strength Test(GP20)	\$0.00	Provated	\$100.00	\$0.00	\$100.00	\$0.00	\$100.0
	Friedune schength (Heliquezu)	20.00	Prorated	\$100.00	20.00	3100.00	20.00	3100.01
	Compression Strength Test (GP20)	20.00	PTOFADE	\$00.00	20.00	200.00	20.00	300.0
0	Compression Strength Test (GP30) Contenession Strength Test (CD30)	\$0.00	Prorated	\$50.00	\$0.00	540.00	\$0.00 \$0.00	200.004
0	Contentiation Strength Test (CDN)	40.00	Doraled	680.00	60.00	610.00	40.00	400 00 680 00
3	Solit Tenale Strength Test (GP30)	\$0.00	Provided	\$50.00	\$0.00	580,00	\$0.00	\$80.0
4	Solit Tenale Strength Test (GP30)	\$0.00	Presided	\$80.00	\$0.00	580.00	\$0.00	\$80.0
5	Soli Teraile Strenth Test (GP30)	\$0.00	Decesied	680.00	50.00	540.00	50.00	580.0
8	Solit Tensile Strength Test (GP30)	\$0.00	Prevaled	\$80.00	50.00	\$50.00	50.00	580.0
0	Flexural Strength Test(GP30)	\$0.00	Provaled	\$80.00	\$0.00	580.00	\$0.00	\$80.0
0	Flexural Strength Texil(GP30)	\$0.00	Provalad	\$50,00	\$0.00	580.00	\$0.00	\$80.0
1	Flexural Strength Test(GP30)	\$0.00	Prorated	\$50.00	\$0.00	\$50.00	\$0.00	\$80.0
2	Flexural Strength Text(GP30)	\$0.00	Provalad	\$50.00	\$0.00	\$80.00	\$0.00	\$80.0
1	Literature Collection	\$0.00	Proralad	\$0.00	\$0.00	\$0.00	\$0.00	\$0.0

Fig. 10 Budgeting of Project

#### VI. CONCLUSION

This project that cement in concrete can be replaced by waste fine glass powder; because of it contains more siliceous and calcareous products. suggests The quality of various materials required for making a concrete was selected as per Indian Standards testing procedure and the values are in permissible limit. Then the project deals with the comparison of various strength parameters of both conventional and Glass powder concrete (GPC). The 10% replacement of glass powder by cement gives better compression, tensile and flexural characteristics result when compared conventional concrete and glass powder concrete to complete an activity in the site considerations.

#### REFERENCES

- Aimin Xu and Ahmad shayam, "Value added utilization of waste glass in concrete", Cement and concrete research, vol.34,81-89,2004.
- [2] Carpenter,A.J. and Cramer,C.M, "Mitigation of ASR in pavement patch concrete that incorporates highly reactive fine aggregate", Transportation Research Record 1668, Paper No. 99-1087,pp.60- 67,1999.
- [3] Christopher cheeseman, "Production of sintered light weight aggregate using waste ash and other industrial residues", Belgium, 2011.
- [4] Kumarappan N.(2013) "Partial Replacement Cement in Concrete Using Waste Glass" International Journal of Engineering Research and Technology (IJERT) Vol. 2 Issue 10, ISSN: 2278-0181.
- [5] Patel Dhirendra, Yadav R.K. and Chandak R (2012) "Strength Characteristics of Pre Cast Concrete Blocks Incorporating Waste Glass Powder" ISCA Journal of Engineering Sciences Vol. 1(1).
- [6] Professor Narayanan Neithalath "The Potential of Using Waste Glass Powder Generated in High Performance Concrete"
- [7] Dr. G.Vijayakumar, Ms H. Vishaliny, Dr. D.
  Govindarajulu; (2013) "Glass Powder as Partial Replacement of Cement in Concrete Production".